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Alpha Iota of Pi Lambda Theta gratefully dedicates this volume of the Claremont College Reading Conference Yearbooks to PETER LINCOLN SPENCER, in acknowledgment of its debt to a great teacher, who has inspired and led this organization in all its activities for the past twenty-six years.

CLAREMONT COLLEGE READING CONFERENCE

Twenty-third Yearbook

1958

GENERAL CONFERENCE THEME

Reading: The Process of Making Discriminative Reactions.

SPECIAL CONFERENCE THEME

Reading in a Geophysical Age

Jointly sponsored by CLAREMONT COLLEGE *and*
ALPHA IOTA CHAPTER *of* PI LAMBDA THETA

CLAREMONT COLLEGE CURRICULUM LABORATORY
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Claremont College Reading Conference
Twenty-third Yearbook 1958

Introduction

The twenty-sixth annual session of the Claremont College Reading Conference was held during the period July seventh through the eleventh in 1958. The special theme for that session was "READING IN A GEOPHYSICAL AGE".

The theme was chosen in recognition of the distinctive program of reading being conducted cooperatively by representatives of many nations and popularly identified as the International Geophysical Year, IGY.

In his discussion of "READING IN A GEOPHYSICAL AGE," Spencer shows how the reading being accomplished by the IGY participants illustrates the necessity for the broad conception of the nature of the reading process which this conference has consistently presented and stressed. In the IGY reading program much emphasis is given to the direct reading of things and of relationships among things. Some scientists are reading glaciers. Others are reading ocean temperatures. Still others are concerned with stresses within the earth, or with other aspects of the geophysical environment. Attention is centered on reading to determine the nature of the things of concern and of their relationships with other things. This type of reading has been identified by this conference as PRIMARY reading, because attention is centered directly upon the reading of the thing of concern and not upon symbols representing someone's ideas about the thing. Primary reading of this type is as important in other reading programs as it is in the IGY program. It is the basic source of meaning and of judgments of significance.

The IGY reading program also includes a vast amount of *secondary* reading activity. Secondary reading is cen-

tered upon the use of symbols rather than being directly concerned with the things symbolized. It constitutes quite a different intellectual procedure from that involved in primary reading. Ordinarily symbols do not closely resemble the things symbolized. The more abstract the symbols become the more the processes of memory and recall are involved.

Reading in the IGY program presents a third phase of reading which this conference has stressed, viz.: reading is a multisensory process. Many sense modalities are involved. And, by means of ingenious supplementation of man's senses aspects of the environment for which man has no direct sensory reception are made available to him for reading.

For students of the reading process and of its application in human behavior, the IGY reading program is worthy of careful study. Of course, not all of the Reading in a Geophysical Age is being accomplished by the IGY personnel. Everyone must read and everyone is reading continuously. Two important questions need to be considered, however. They are: (1) *what* are you reading? and (2) *how well* are you reading it?

Not all of the reading in a geophysical age is directly concerned with geophysical phenomena, as such. Edgar Dale in discussing "THE DEVELOPMENT OF INTERNATIONAL UNDERSTANDING" stresses the need for an anthropocentric concern in our reading. The earth is populated by people who constitute a factor of the environment of every reader. Dale points out the need for "systematic instruction to produce the able and mature and informed reader, listener, and viewer" with "rich personal commitment and concern that makes information real, alive, and warm".

Carrying forward the idea of international understanding Ambassador Yang presents a specific instance which has great pertinency. In discussing "RUSSIA" as "A PROBLEM TO BE SOLVED" Ambassador Yang contrasts the reading of behavior with the reading of verbal assertions in developing international understanding. Unless and until we learn that actions are more indicative of real intent than are words we will not read either nations or persons effectively. This is a pertinent illustration of the need for *primary* reading in order that secondary reading may be effectively accomplished.

Doctor Douglass pursues further the theme of reading to produce better human relations. In his discussion of "READING AS THE EARTH WRITES" Douglass asserts that "teaching youngsters to read the differences which occur from place to place around the globe should be a first order of business in our schools". He points out that neither mere memorization of factual data nor provincialism in one's concern is acceptable as a program to accomplish this end. There is need to "constantly seek to help the student develop concepts about the world and to become aware of the big ideas and significant attitudes; which, for good or ill, are shaping the destiny of mankind".

One's ideas of a subject for study are potent factors in determining what will be studied and how the study will be pursued. With the current clamor for more emphasis on mathematics and science it is important to recognize that those terms are merely nouns. They name something. But specifically what they name is often not clear either in the minds of the one who expresses the symbols or the one who reads the expression.

Mrs. Larson, a teacher of biology, attained some national prominence by being "written-up" in the Reader's Digest as "*The Teacher Who Won't Answer Questions*". In presenting "SCIENCE, A CREATIVE ACTIVITY, AND READING" she treats science as a *verb* rather than as a *noun*, and by so doing she identifies science learning with the reading process. "Science," she says, "is not a special activity, indulged in at a special time by special people in a special room—the laboratory, where it is put on and taken off like a laboratory garment."

"READING GLACIERS AND THEIR INFLUENCE ON MAN'S ENVIRONMENT" is one phase of the IGY's program of geophysical reading. Doctor Rigsby tells why man is concerned with glaciers and with glaciation. The occurrence and recurrence of ice ages during the earth's history are interpreted as evidence of influences which affected the earth's climate. What the agencies were which producd those influences and under what circumstances they occur are matters of importance for man to know. Reading glaciers and polar ice fields is being pursued by representatives from eleven nations operating in some thirty-eight new centers established under the IGY administration.

Doctor Katherine Bishop presents the need for critically reading the "SPHERES OF INFLUENCE AND EDUCATIONAL PATTERNS". Pointing out that "only individuals are capable of becoming educated", and that "learning is the responsibility of the child", she reviews and evaluates certain "spheres of influence" in those regards. She treats aural reading, i.e., listening as a major factor in reading one's environment. Eight "false assumptions" concerning aural reading are presented and discussed.

"READING HUMAN BEHAVIOR" with reference to "basic rules of reality" is considered by Doctor D. A. Bristow. He points out that there are many "either-or" choices which human readers must come to recognize and for which they must make decisions. Failure to make clear cut decisions and thereafter to live by one's choice leads to undesirable behavior. There is need for a program for teaching people to read themselves and to read other people in order that the "*principles of the use of intelligence, adaptation, willingness and unselfish love*" may be made characteristic of their behavior.

Handwriting is produced by a person. Its primary function is to record what the person wishes to express verbally. Customarily it is read with that purpose in mind. However, there are other purposes for reading writing. Mr. E. C. F. Cole discusses "READING PERSONALITY THROUGH HANDWRITING ANALYSIS". Graphodiagnosis is presented as a reading of personality as it is projected to handwriting expression.

This conference has a long and basic interest in the visual aspects of reading. For the past several years the California Optometric Association has offered an outstanding lecture in conjunction with the conference. The 1958 lecture was incorporated within the conference program. James R. Gregg, O.D., spoke to the problem, "WHAT ABOUT SEEING FOR READING IN A SCIENTIFIC AGE?"

Dr. Gregg stated that "*Civilization has lifted the burden from man's back and placed it on his eyes*". He points out that while the tasks of seeing for printed word reading are enormous, they by no means exhaust the visual services in human behavior.

A second sense modality has long been of interest to this conference. It is the sense of hearing with the accompanying behavior of aural reading. Miss Ethel Drake considers "AURAL INTERPRETATION" to be "A BASIC APPROACH TO READING FOR THE DEAF CHILD". Where the hearing child readily develops an aural-oral language which he then transliterates into a visual language using print, the deaf child lacks the ready access to the more primary language form. Reading that situation has potential significance for instruction for both groups.

Taking Robert Oppenheimer's statement, "We stand at the edge of mystery", made with reference to atomic matters, R. Van Allen applies it to the transition from *primary* to *secondary* reading, i.e., from the reading of things in their own right to the reading of symbols which abstractly represent things as ideas. In his discussion of "THE EDGE OF MYSTERY", he tells how the child's primary reading and primary expression may be used to activate and to implement his interest in and proficiency with printed word reading.

We are so accustomed to the idea that a large per cent of what we read is contacted through the eye that we frequently overlook the competencies of those who are blind to a light stimulus. Dr. Corbin describes in "READING WITHOUT LIGHT" interesting and significant perceptive processes which baffle the sight minded reader. He points out that blindness is an "inconvenience". May we also conclude that sight may under certain circumstances be a handicap? How can a sighted person learn to read his other senses as the sightless person so ably reads them?

Dr. Charles M. Brown treats of "THE WEIGHTIER MATTERS" in the teaching of reading. Citing Einstein's asser-

tion that "the crying evil of our time is the perfection of means and confusion of ends", he offers a remediating factor, the goal of "*maturity in reading*".

The "*How To Do It*" aspect of reading instruction is always welcomed in any consideration of that area of concern. Mildred E. Thompson tells "HOW ONE SCHOOL DISTRICT IS MEETING THE NEEDS OF ITS RAPID LEARNERS IN A GEOPHYSICAL AGE". Six procedures currently used with success in a particular school district are presented.

The conference committee and the authors of the yearbook articles hope that you will consider carefully the messages we have presented herewith. Repeatedly by direct statement or by inference the point has been made that programs of instruction in and through reading must involve reading more than the printed words. The conference sponsors have been gratified to observe how more and more as time marches on awareness of the broadness of the reading process appears to be increasing. The hope of this has been the force which has kept the conference going for more than a quarter of a century. Many of those who plan and administer the conference programs have served continuously throughout most of that period. Believing that the message of the conference has now become sufficiently established to be continued in its own right the co-sponsoring group, Alpha Iota Chapter of Pi Lambda Theta, voted to cease officially its efforts in that connection. The 1958 conference sessions and this yearbook mark the termination of the joint college and chapter sponsorship. All future operations of either the conference or the yearbook series will be solely under the college direction. The yearbooks for the years 1949 through 1958, volumes 14 through 23, may still be purchased through Claremont College Curriculum Laboratory, however.

Reading in a Geophysical Age

PETER L. SPENCER, PH.D., *Professor of Education*
Director of Claremont Reading Conference

The special theme of the Claremont Reading Conference, READING IN A GEOPHYSICAL AGE, was selected for this, the twenty-sixth annual session, in recognition of the contributions *to* and *thru* reading arising from the activities during the International Geophysical Year. As you know, the time span of the planned program of cooperative geophysical study extends beyond a calendar year. However, our conference session is occurring at the close of the first twelve months of the period. Hence, it seems appropriate that we consider its program in the light of our concern with reading.

Thruout its existence this conference has espoused a broad and inclusive conception of the nature of the reading process. We have been concerned with the ways in which man's intellect is stimulated and with how man senses and interprets what he senses in such manner as to permit him to make apt responses. In short we believe that reading is a native process of human nature which is amenable to enormous development and which is activated by any and all of man's senses. THAT people will read is assured by nature, but WHAT they will read and HOW well they will perform the reading are determined by experience and educational opportunities.

The significance and pertinence of our broad conception of the nature of the reading process is evident as we note the purposes and procedures proposed for international

geophysical study. A basic purpose is to discover things about man's geophysical environment which are not presently known.

That type of knowledge must be derived from the *reading* of the *things* in their own right. It cannot be derived from reading books or other sources of word symbols for the reason that no one knows what to symbolize with words. New word symbols will need to be devised and new ideas created. And, since these ideas are concerned with particular things, those things must be read as they are.

The process of reading things in the concrete our conference has identified as PRIMARY reading. It is primary in the sense that it must precede the reading of symbols for re-presenting things, and it is also primary in the sense that it is fundamental to the giving of meaning and significance to the reading of symbols. Symbols may be likened to maps for ideas but symbols are definitely not ideas. In order for symbols to be effective for mapping ideas and for their expression and communication, it is essential that the symbols and the symbol patterns be given ideational meaning by both the one who writes them and by the one who reads them. That which is symbolized must have its origin in direct experiencing.

The emphasis upon primary reading within the program for the IGY has significance for us in our concern for reading in educational endeavors. We must provide for and make use of primary reading both as a way of behavior and as the source of meaning and of judgments of significance. Word symbols are impotent to supply these. Consequently, a program for reading development which is concerned only with skills of word recognition and the analysis of word patterns is inadequate.

The discovery of new aspects of man's geophysical environment is one of the aims of the geophysical readers. However, a second aim has to do with the validation and amplification of things already recognized and of ideas already symbolized. This is a very different type of reading activity. It calls for both *secondary* and *primary* reading procedures.

SECONDARY reading refers to the reading of SYMBOLS. The things symbolized may or may not be present to the senses. The ideas are symbolized and attention is mainly concentrated on recognizing and interpreting the thought trail as the symbols map it out. This is the type of reading which is commonly stressed in conferences concerning reading and which is generally considered of proper concern for school instruction programs. However, our conference is pleased to note that the geophysical readers must supplement and corroborate their secondary reading with a vast amount of primary reading. Word symbols lend themselves for the expression for erroneous ideas quite as readily as for the expression of valid ones. Failure to perform the primary validating reading for the ideas they find expressed would only perpetuate incorrect information.

Once again we find a lesson for our programs of reading instruction suggested from the reading being accomplished during IGY. Too often we seem to typify the all too common reaction, "It must be so. I saw it in print." We need to give greater attention to seeing that the reading of symbols is validated by the reading of the things symbolized. By so doing stereotyped thinking and sheer gullibility may be alleviated.

A third aspect of the geophysical reading program has to do with the reading of concepts derived from varied

sources for the purpose of discerning pattern in the geophyical universe. Reading for such purpose call for abilities to abstract pertinent data, to make generalizations, and to create inferences or hypothecations concerning the universality of relationships. This is a type of reading which sees a storm as a product of the properties of relationships of the Earth and Sun rather than a whimsical display of anger or solicitude of a spirit. This reading senses order, organization, and pattern rather than chaos in the universe. Such concepts are unlikely to be created from the reading of separate things. They are based upon the sensing of consistency, of relationships between and among different things.

Everyone intuitively performs reading of this type, but the development of such abilities and their refinement is an important part of one's development in and thru reading. This is in part what is implied when we say that reading is a process of behavior and that it is not a body of subject matter. Reading is the process by which all subject matter is accomplished. By reading of the type we have been discussing relationships among the subject matter fields become evident and ideas and aptitudes in one area become more readily accessible for use in other areas. Persons especially advanced in this type of reading, such as Einstein, Newton, Planck, and a host of other have greatly advanced our knowledge of the system and pattern of the Universe. We very much need readers of that type to point out the unified nature of human experience and to disclose the pattern of concepts which underlies all the areas of curricular fields.

Reading for the advancement of man's relationship with his environment does not differ in its nature from the other readings which men perform. It is characterized by the primary reading of things as sensed in the concrete from which

one's ideas of things and relationships are created. A second characteristic is that of associating symbols with ideas. That facilitates thot processes and the processes of communication. A third characteristic is that of validating the ideas which we create. In short giving them meaning and significance. A fourth characteristic is that of inferring relationships beyond the limitations of the specific experience, the sensing of pattern or system among the ideas we have achieved.

These characteristics are evident in all reading, but they can be very clearly illustrated in the geophysical reading. Hence, we would do well to use this timely activity to make clear to students what reading really is.

We may draw upon the geophysical reading for other pertinent ideas relative to the total reading behavior. For example, human kind possesses extremely limited sensitivity to the environment in which he lives. The visual sense, which we certainly regard as highly important, puts us in direct contact of the "ray" aspect of our environment. By means of sight man normally can sense wave lengths ranging from red, seven hundred thousands of a centimeter, to violet, four hundred thousandths of a centimeter inclusive. Direct visual awareness then has a span of three hundred thousandths of a centimeter of variation in wave length. This is an exceedingly tiny span of the total range of wave phenomena that exist in the Universe and which has been identified from approximately one trillionth of a centimeter to one million centimeters in wave length. In like manner man's sensitivity to sound is confined to a comparable tiny span of the total range of wave phenomena of which the so-called sound waves are a part. Sensitivity to thermal stimulation is provided by the heat receptors. But we are insensitive to many

of the wave lengths except as we sense indirect evidence of their existence. For example, there will be many instances during these next few months when people will be affected by ultra violet waves, but they will not be aware of that fact until some time later. They will experience what we call "sun burn".

Two things of importance for reading have grown out of the fact that human sensitivity is so limited. The first of these is that man has contrived ways to implement his sensory abilities so that their usefulness is greatly increased. The second thing of importance is that man can devise ways of supplementing his native sensory abilities. For example radar instruments utilize waves to which man is directly insensitive, but the radar instruments transmute those waves into channels for which we are sensitive.

The improvement of reading by means of the implementation of native sensitivity has been spectacularly accomplished in the geophysical reading field. For example the sight potentialities of the so-called "naked eye" are reasonably adequate for earthbound man. But they are wholly inadequate to cope with geophysical reading of space or with the comparable reading in the atomic realm. In these respects man is truly "sense imprisoned" as he reacts at the juncture region between the macrocosmos and the microcosmos, i.e., between the enormousness of space and the minuteness of electrons, protons, and the like.

By means of the implementation of sight as regards reception from a distance men are making geophysical readings of objects so far out in space that Earth measures of distance become meaningless. As a matter of fact, there is no way of knowing whether the objects being read currently exist or that they have ever existed during the supposed span

of human life on Earth. Such reading demands that new referent concepts be developed. So long as man is earth-bound, he can use the Earth as a convenient referent for his concepts of time, space, motion, etc. But, once he leaves the "earth centered" environment, those concepts lose their pertinency.

The implementation of sensory processes so obviously needed for geophysical reading is functional also for other applications of the reading process. The myopic or near-sighted person has the horizon of his sight restricted in much the same manner that the normal "naked eye" has a restricted access to space. In order to reach farther into space the myopic eye needs to be implemented.

The implementation of the senses illustrated with the sense of sight is just as necessary for each of the other sensory processes. So long as our reading is confined to a limited and somewhat standardized environment the crucial need for sensory implementation is not so evident. But, once we become concerned beyond that limited environment the need for implementation is recognized. Good reading would then suggest that we reexamine the concept of adequacy which we developed and used in the more sheltered environment. Our sensory processes are not perfect and they do not operate automatically at their highest efficiency. We may need to implement them by artificially extending their acuity or we may implement them by learning better ways to utilize the sensitivity which is there.

The supplementation of man's limited sensory capacities is another way of extending his restricted ability directly to sense his environment. For example, while man has no sense receptors for the so-called x-rays, he has been ingenious enough to devise instruments to detect and measure them.

He has gone even farther and harnessed them as tools which he uses with considerable precision. The ingenuity with which supplemental devices have been developed to transmute potential stimuli from forms for which man is not sensitive into forms for which he is sensitive is amazing to say the least.

Supplementation of sensory processes occurs in all reading. For example, it is difficult to conceive of a sensory experience in which only one sensory process is involved. Sight and hearing commonly supplement each other. Smell, taste, and touch are frequently used as supplemental cues. And, perhaps the omnipresent supplemental or coordinate sensory process is that of kinesthesis. Some students of reading have asserted that kinesthesis is the basis of all meaning.

The coordination of multisensory data is one form of supplementation. Another form is perhaps more comparable to the supplementation used extensively in geophysical reading. For example the thermal sense gives wareness of temperature, but in most thermal reading people prefer to use a thermometer, an instrument which measures thermal variation by the expansion or contraction of a mercury column or some comparable substance. Thermal reading by means of the thermometer need not directly involve one's thermal sense organs. This is truly a supplementation of the senses.

There is another characteristic of geophysical reading which is prevalent but perhaps less obvious in all reading. I refer to the need of the geophysicist to know what he is trying to read and to know effective ways of applying his skills to achieve that reading. During the geophysical reading period specific objects of regard have been assigned for study by teams of readers. Those who are reading the aurora are not also expected to read the ocean currents. Those who

are reading the ocean underneath the polar ice caps are not expected to make readings of the sun spots. Those who are reading outer space for the evidence of gamma rays or for other possible erosive particles are not reading the stresses in the earth's crust. That is an highly organized and restricted program of reading. The records, presumably, will be preserved and eventually they will be read for evidences of pattern beyond the specifics of the reading assignments.

It may be that there is need to cultivate among readers the importance of purpose in reading, and the comparable importance of adapting one's reading procedures to the particular reading task one is to perform.

Because the eighteen months beginning with July, 1957 have been designated an International Geophysical Year, and because many countries have cooperated in the studies which are being made, we must not conclude that geophysical reading did not occur previously. As a matter of fact geophysical reading is being accomplished by everyone and it has been going on since man came into existence. Everyone at some time reads the sky, the terrain, the weather, the climate, and hundreds of other geophysical phenomena. *But our reading is likely to be regional in its reference and personal in its import.* One of the purposes of instruction in and thru reading should be to release the readers from those two tendencies.

A student in my seminar on reading sensed this purpose and used it as the theme of her term paper. She said, "While the world is getting smaller, our environment is expanding. WE MUST LEARN TO READ OUR EXPANDING ENVIRONMENT."

Learning to read our expanding environment is the very essence of geophysical reading. It is also essential in social reading. It expresses succinctly and aptly an idea which we may well make our own.

We find difficulty in recognizing that less than five hundred years ago, the American hemisphere was unknown to the culture of our forebears. The voyage of Columbus in 1492 was fraught with the idea that if one sailed to the edge of the earth he would fall off into space. People were more than earthbound in those days. They were "land bound", as well. Recall the furore which resulted from the "remedial reading" which Columbus did. He sailed on and on but found no edge where man could fall off the earth.

The opening of ocean navigation without having to remain in sight of land, again called for geophysical study. Currents of water had to be read and utilized in navigation. Since the motive power most amenable to use was the wind, studies of wind currents likewise were made necessary. Both the ocean currents and currents in the atmosphere were factors in the history of man's activities thereafter. Today we face a threshold somewhat analogous to that which was crossed in the time of Columbus. Only, today man seeks release from the "tether which binds man and earth together". Today we are concerned with the *edge of the ocean of air* rather than the *edge of the ocean of water* as in the time of Columbus. The edge of the ocean of air we have reason to believe is real and important. Man cannot live without oxygen. When he leaves the earth's atmosphere, he must be supplied artificially with the needed oxygen.

But there is another edge with which the space traveller must conjure. That is the edge of the Earth's gravitational force.

The modern Columbus who sails on and on *away* from the earth rather than *upon* it, has need for geophysical knowledge little dreamed of formerly. Some of the necessary information is being secured by inanimate readers fired

into outer space to supplement man's earthbound receptors. This is typical of modern man. Wherever possible he devises a machine to perform reading tasks which are amenable to machine like reactions. If Mark Twain were alive today he would need to retract his caustic remark that everyone "talks" about the weather but no one "does" anything about it. While, as yet, only a very limited control has been established over the weather, the future may see that radically changed. Geophysical reading has equipped man with the ability to "milk" rain from the clouds. At some time in the future man will become able to control weather, rather than merely to forecast it. Then his problem will be even greater. He will then have to learn how to *read the men who control the weather.*

Geophysical reading has the potentiality of making life on earth more pleasant and fruitful, but it also has the potentiality of making earthly life practically impossible. Geophysical reading has the probability of freeing man from his earthbound state and giving him access to space unlimited.

BUT, geophysical reading is not the only kind of reading in which man must engage in order to live the good life. So long as knowledge is power, there is need for moral and ethical controls over the exercise of that power. Geophysical reading, important as it unquestionably is, must not be permitted to preempt man's intellect to the exclusion of social reading which has as its purpose the awareness of human aspirations and needs and the servicing of these for the production of a humane society wherever man is found.

It might be well for a future session of this conference to address its program to the social reading which advances in geophysical reading have brought out in such bold relief. As Alexis Carrel pointed out some years ago, it is dangerous for man to know other things better than he knows himself.

The Development of International Understanding*

EDGAR DALE, PH.D.

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A lady on a guided tour of Palestine said: "Was I surprised when I learned that Dan and Beersheba were names of towns! I always thought they were a man and a women, like Sodom and Gomorrah." The lady is not alone. Today the reader of foreign news is puzzled by names like Ghana, Jakarta, Goa, Kabul, and Taipei. He isn't quite certain whether Persia is the same as Iran. And where, he wonders, and Guiana and Guinea?

In 1953 George Gallup concluded from his study of American knowledge of foreign affairs that "The most striking finding was the relatively low level of knowledge about international affairs shown by the average person interviewed." Here are samples of this ignorance: 56 per cent could not identify Syngman Rhee correctly; 49 per cent could not name Chiang Kai-Shek as the leader of the Chinese Nationalists; 79 per cent did not know what the letters NATO stood for; 54 per cent said they were not familiar with any of the work the United Nations was doing; 79 per cent did correctly identify the then Prime Minister Churchill but only 27 per cent knew the political party then in power in England.

Eight persons were interviewed about a press story headed "Magsaysay in Ring against Quirino." Not one had

*Reprinted with permission from the author from "The News Letter," March, 1958.

read the story. Six when questioned thought it had to do with a wrestling match; two with a boxing match. Gallup also did interviewing in France, Britain, and Italy. The average man there was no better informed than the American reader. For example, 49 per cent of the British, 39 per cent of the Americans, 30 per cent of the Italians, and 22 per cent of the French were unable to name any of the Russian satellite countries. But 88 per cent of the French were able to name the two atom spies executed by the United States.

Some persons are alarmed by the ignorance shown by these replies. Others point out that this isn't a bad showing, since half our adults have had less than nine years of schooling and "from twelve to fifteen percent . . . cannot read at all or . . . cannot read as well or better than a child who has made normal progress in reading during four full years of schooling."

Systematic instruction to produce the able and mature and informed reader, listener, and viewer is necessary and called for. But even though we were all skilled in these fields, we would still need the rich personal commitment and concern that makes information real, alive, and warm. True, there are some persons who get warmth from the cold blue light of an abstract idea, but most of us do not feel strongly drawn to an idea unless a person is wrapped up in it.

Most of us have to know and care for Yoichi, or Ilhan, or Ibrahim, or Inga, or Alfredo before we can know and care for their country. The initial cause of our ignorance of international issues is not low reading ability, not inadequate reporting, but lack of a friendly image of a real person in a real country. The building of such friendship is one of the first steps in building international understanding.

How can such personal friends be made? We must think about personal letters and personal tape recordings to our age-mates abroad. For the college student we can make use of the junior year abroad, the winter quarter or semester in Mexico, graduate study in a foreign university. We have already set up a lively exchange of professors and students. We must also work more closely with the 40,000 students from 136 countries now in our colleges and universities. Many of them crave friendship, want an opportunity to see American family life, our farms and factories.

A second excellent way to develop understanding of world affairs is to get acquainted "personally" with an American who has been there, who has studied that country. Every city or area of any size now includes persons who know certain foreign countries well, who have been on missions there, who have tape recordings, excellent color slides or films, art objects, and articles which illuminate the life of a people.

I think of four persons from the Columbus, Ohio area who have toured the Soviet Union: a farmer, an architect, a professor, and a lawyer. All have spoken widely and effectively, or have had a series of articles in local newspapers, have appeared on radio and television. A college junior who spent a year in Israel told me that in the year after her return she had spoken to audiences totalling more than 10,000 people. Yet the services of persons like these are not always adequately organized or used.

A third way to be informed about a country is through the press. It is easy to criticize the daily press for running a meager 3,200 words a day of news with a foreign dateline. Yet the average reader, according to Gallup, spends 2⅔ minutes reading this foreign news, reads only a small pro-

portion of it. Are the editors satisfied with their coverage? Gallup says: "More than two-thirds of the 115 editors queried about the coverage of foreign news believe the American press is doing a good job. Twenty-three think the job is only a fair one; twenty-seven call it poor."

> Lester Markel, *New York Times*' Sunday Editor, says: "Too many editors will tell you that foreign affairs are remote concerns and that they must pay prime and almost complete attention to local matters. I still insist that foreign news is not foreign, it is local. Because what happens in Pakistan or Paris, in Manchester or Moscow is sure to affect our pocketbooks and, more vitally, it may involve the very lives of our own neighbors' sons. After all, there were World Wars I and II and there was Korea.
>
> "Certainly 'foreign' affairs is now the paramount issue in the nation. Yet most newspapers lag badly in printing international news. And to suggest that, at an editorial convention, there be some discussion of international news, is like proposing the playing of Bach to a boogie crowd; and if perchance the decision is made to attempt it, it is likely to become Rachmaninoff-and-Roll. To put it succinctly, this is shortsighted and cockeyed."

A fourth way to inform the public about foreign affairs is through radio and television. Radio, especially those stations served by the National Association of Educational Broadcasters, presents thought-provoking programs on foreign countries and critical issues relating to foreign policy. We have grown accustomed to the brilliant reporting of CBS, especially its year-end news summaries. But an inspection of the scheduled programs of commercial television and

radio reveals little concerted effort to develop the well-informed consumer of presentations of world issues.

Perhaps at this point we might take a closer look at our goal, our purpose as far as international understanding is concerned. To be informed is better than to be ignorant, but to be informed is not enough. There are persons well-informed about bad housing, juvenile delinquency, or inadequately supported schools who couldn't care less. Many know the facts of racial segregation in the United States, but are not concerned enough to do anything about it.

One study showed that 80 per cent of the people who are "for" the United Nations say they have done nothing to act upon their concern. It may be well, therefore, before we think of launching another information campaign to ask: What do we want in world affairs? What is the least we would settle for?

None of us, I assume, would settle for less than the eventual acceptance and carrying out of the orderly and evolutionary settlement of conflicts through world law. We are against revolutionary methods of force and violence, whether through physical or psychological aggression. This position could hardly be called visionary since the absence of this orderly plan could mean devastating war.

Other persons, a much smaller number, want this much and more. They will settle for nothing less than a fulfilled life for every person everywhere. They are not Utopians, but they have a feeling for the history of the times, especially that of the United States, and are aware of what can be done by a society which believes in giving everyone a fair chance.

To live a fulfilled life, you must stay alive. But each year five million people in the world die of tuberculosis,

more than 80 million people have yaws. Fifteen per cent of the world's population has trachoma, the leading cause of blindness. However, by using aureomycin and terramycin, Taiwan has already cured more than a million cases of trachoma among some two million school children. These statistics are not easy to remember, but it is hard to forget the Danny Kaye film which showed the effect of penicillin on yaws and the relationship of UNICEF and the World Health Organization to this program.

To live, you must eat, and the world's food supply is inadequate for good health. Therefore we must raise more rice, corn, and wheat per acre, get better seed, keep it stored safely away from the rats. Even a child can understand the Philippine film "100 Cavans per Acre," which introduces a new method of rice culture to the Philippines. It is not hard to understand the work of the Food and Agriculture Organization (FAO) if it is made personal in this fashion.

But you can have enough to eat, be free of physical disease, and still live the drab, unrewarding life of an illiterate in a world that demands literacy. About half of the world's population is illiterate and an additional 15 per cent is nearly illiterate. The UNESCO World Survey of Education says: "Of every ten children in the world, five do not go to school; four are in primary school, and one is receiving post-primary education."

But even if every American knew all these facts about world health, agriculture, and education, we would still face the problems of concern and action. How many of us really care about these persons who go blind from trachoma, who die of tuberculosis, who do not get enough to eat, who are sentenced to live in the darkness of illiteracy?

The real issue is: Do we want to share our good life with the unfulfilled people of the world? The false issue (now so popular) is: How can we step up our programs in science, mathematics, and ballistics so that we can kill most of the people in the world just ahead of the Soviet Union? While we are doing this, the adroit Soviet Union is sharply increasing its economic aid to underdeveloped countries.

What picture are we sending abroad? Are we seen as armored and arrogant dealers in death, or as compassionate conservers of the dreams of poets and prophets? This is the key problem in world understanding.

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Russia: A Problem to be Solved

YOU CHAN YANG

Korean Ambassador to the United States

Russia was a problem for Korea in the thirteenth century—when Ghengis Khan and his Mongol hordes captured China and then moved down to occupy our own peninsula. In those days we had little strength with which to fight, for ours was never a militaristic nation. Neither, in that age did we have friendly nations ready or able to help us. Isolationism was the dominant philosophy of every nation—and even if it had not been, the vast ocean differences and land barriers were sufficient to make aid from outside an impossibility.

Our ancestors found the strength they needed within their own hearts and spirits. When our King and his Court were forced to flee for refuge to Kangwha Island, in the mouth of the Han River, he took our best scholars and printers with him. And there on that island, a full two hundred years before Gutenberg, and seven hundred years before the beginning of what we now familiarly call "psychological warfare," he ordered a mass printing of the Buddhist scriptures (at that time the resource for our spirit of independence), which were then distributed secretly all over Korea.

What he was doing—and why—contains a lesson for us in this twentieth century as we confront the onrush of the modern Mongols, the imperialism of Soviet Communism. The wise King knew that no people can ever be permanently conquered so long as they nurture in their minds and hearts the principles in which they deeply believe. The enemy could

occupy the land; but no more than in Hungary, or Poland, or Northern Korea today could they crush the spirit of resistance of a people determined to remain true to its heritage.

Far more than has been true of any earlier conqueror, today's Communists are aware of this fundamental fact. This is why they have developed the most massive propaganda program ever known in all history.

What Lenin planned and what Stalin and now Khrushchev have devoted themselves to accomplishing is a totalitarian psychological conflict—a global battle for the minds of men. With grandiose ambition combined with a coldly calculated shrewdness, they organized in the early nineteen-twenties a "Communist International." Its aim was to flow over, under, and through national boundary lines, to carry to people everywhere an evangelical message of revolution against "whatever powers there be."

Behind the slogan, "Workers of the world unite!", their constant theme has been, *destroy, destroy, destroy.* In their instructions to their party members they said, "Join every free organization you can get into—with the aim of wrecking it. In every nation, identify the strongest leaders of freedom and the institutions upon which freedom is built, and direct your constant attacks against them. Infiltrate labor unions and free legislatures, subvert reform movements, sabotage constructive programs. And in doing so, use every possible form of deception, perfidy, and betrayal. For the end justifies the means, and the great end is the communization of all mankind."

Every syllable of these paraphrased instructions can be documented from explicit directives issued by the Soviet

Communist Party. This is why the Supreme Court of the United States has solemnly declared that the Communist Party is an organized criminal conspiracy. It is why my own Government, along with many more, has outlawed the Communist Party as a political organization. It is why the Communist Party is essentially and vitally different in its purposes, its form, and its methods of operation from the normal political parties with which free democracy is familiar.

The very hallmark of Communism is deceit and hypocritical pretense. Its training programs are designed to teach its chosen agitators how to appear as persuasive advocates of the rights of the people, while making every effort to bring those very people into helpless subjection to the will of the Communist dictatorship in Moscow.

The Communist advance behind the slogan of "liberation"—to bring China and Vietnam, the Baltic countries and Eastern Europe, north Korea and Eastern Germany under the domination of the Communist Empire, with its capital in Soviet Russia. They advance behind the slogan of "democracy" while they impose totalitarian dictatorship upon subjected peoples. They constantly preach "peace," while they drive forward to destroy freedom. They piously insist upon "non-intervention," while they expand their network of subversion into Southeastern Asia, the Middle East, Africa, South America, and Western Europe. They seek to pose as champions of disarmament, while blocking all efforts to achieve it. They cry out for negotiation, while refusing to cooperate in the search for collective security based on respect for law and justice—and when agreements are reached (as in the Korean Truce) they proceed promptly and flagrantly to violate them all.

When they are appealing to intellectuals, they quote endlessly from idealized interpretations of Marxian dialectic that professes to be based on equality and brotherhood. When they address themselves to impoverished masses, they preach hatred. When they penetrate into under-developed areas, they denounce colonialism. And when they propagandize democratic, literate, and prosperous nations, they hypocritically prate about the virtues of tolerance and the desirability of "live and let live"—even to the extent of obscuring the very distinction between the good and evil, between what is true and what is a lie.

In brief, the Communist campaign of obscurity is directed to the destruction of loyalty, of faith, of confidence, and of belief in the basic principles upon which democracy is founded. And this they do in the very name of democratic tolerance, of broad-mindedness, of freedom of thought and discussion.

Taking a leaf from the propaganda methodology of Hitlerian Nazism, they practice the theory that the bigger a lie it is, the more likely it is to be believed (for among decent people there is a natural tendency to think that "where there is smoke, there must be fire,") and that the truth probably lies somewhere midway between what we have observed in our own experience and what the enemy is so blatantly asserting. Thus, the very tendencies of decency among the democratic peoples become aids to the Communist propagandists.

The doctrines and the ambitions of Communism were formulated more than one hundred years ago, but they have achieved their astounding successes only in relatively recent years. The reasons for their latter successes are largely threefold: (1) the world-wide network of the media of mass

communication, which makes it possible for them to get their messages into every country and, indeed, into every home; (2) the expansion of the interest of us all to every corner of the globe, although we are painfully aware of our lack of precise information about remote areas, so that we can no longer test our beliefs by direct observation and experience; and (3) the sense of weariness—and to a great degree cynicism—that has resulted from a succession of great wars that were supposed to have "made the world safe for democracy" but seem in retrospect to have fallen very far short of that effect.

More fundamentally, however, Communism has enjoyed its phenomenal expansion largely because of the inevitable uneveness of progressive and productive developments in this age of technology. Sometimes we define this problem as a "social lag", or the failure of the social sciences to keep abreast of the rapid technological and scientific changes. Stated badly, this means that mankind has achieved the means of eliminating poverty for all, but has not found a way of making the new industrialism serve equally the needs of the varied segments of the world's population.

For myself, I think of the problem in somewhat different terms. To a degree at least, it seems to me that the great unrest of the twentieth century is a result of our aspirations having outrun our achievements. Concretely, we know that hunger and disease can be eliminated, but we have not yet found the political and economic mechanisms to win these battles in all countries nor among all levels of the population. We know that racial differences are largely illusory and are surely unimportant but we have not eradicated prejudice from our minds nor enacted brotherhood into enforceable

laws. Thus we are distraught by a sense of frustration and failure.

This sense of inadequacy has led the democratic world—and most particularly the highly educated Western nations—to question gravely the very system of values upon which their greatness lies. And against this self-questioning has been posed the enormously self-assertive and blatantly evangelistic dogmas of Communism.

Comparisons are said to be odious and reasoning by analogy is suspect among logicians. Nevertheless, within reasonable limits, it seems to me that some enlightenment may be cast upon our problem of how to deal with Communism by harkening to the effect of the French Revolution upon Western Europe.

Two hundred years ago, the equalitarian ideas of John Locke were creating vastly improved political conditions for the English-speaking peoples of Great Britain and America. But France and the rest of Europe still lay in the grip of absolute monarchism. In violent protest against this condition, the French Revolution broke out in a convulsive demand by the people of France for the great boon of self-government. Then Napoleon Bonaparte converted this crusade for liberty into an imperialistic campaign of conquest for the aggrandizement of his own regime. Against this juggernaut of nationalistic conquest, Great Britain was forced to organize a continental alliance through which Napoleon was defeated.

After Waterloo, however, the energizing demands for political equality continued their penetration throughout Europe—eventuating in a series of localized revolutions which brought democracy to much of that continent.

In a parallel historical development, the invention of new labor-saving machines in England introduced the Industrial Revolution, under which poverty and its degrading accompaniments—disease and illiteracy—gradually were alleviated or even eliminated . . . but only from the areas of Western Europe and America. Karl Marx was only one among many (and one of the least perceptive of the great economists) who rebelled against this injustice and demanded that the machine must lift the curse of unremunerative labor from the backs of all mankind. Thus far, and only thus far, the goal was a worthy one and did, indeed, challenge the idealism of intelligent people everywhere.

But then, in 1917, Nicolai Lenin seized power in Russia and sought to divert this great uneasiness into a campaign for the aggrandizement of the Soviet Union. Now that the aim of Communism has become clearly the subjection of mankind to Soviet dictatorship, the United States finds itself forced by circumstances to rally the free world for defense against this new imperialism.

The historical parallel needs to be pushed further. England and her allies utterly crushed Napoleon at Waterloo—but the original impetus of the French Revolution (the demand for political equality)—remained a potent force in Europe and finally succeeded. Still thinking in parallel terms, it seems to me that we in our age must recognize that there is a solid basis for the restive demand by all people of the world for economic equality—or, at least, for the opportunities that spring from technological developments.

In other words, it is not enough to be "against Communism." It is also important to know what we are for. The free world will win the battle for survival in which we are now engaged only if we are strong and effective in fight-

ing for the opportunities for which all men were created with equal appetites—and to which they have equal rights.

What are these opportunities?

They are neither abstruse nor difficult to identify. Your own Declaration of Independence spelled them out as "life, liberty, and the pursuit of happiness." In somewhat more pragmatic terms, they might be enumerated as political freedom, including both national independence and civil liberties for individuals; economic well-being; health; education.

In this great age of enlightenment, we are prepared to grapple with enormous facts of great significance: that two-thirds of the population is still unable to read and write; that half the people of the world are under-nourished; that in many nations of teeming population the average life-expectancy is only twenty-five to thirty years; that because of the lack of enforceable international law, combined with the destructive power of modern weapons, the whole human race lives in a state of constant insecurity—that conceivably, the entire human race might be wiped out in a holocaust of radio-active destruction.

Confronted by such problems as these, it is wholly inadequate to think primarily in terms of negativism—of defensive preparations "against Communism."

This need for constructive thinking, however, does not in any way lessen or mitigate the dangers of Communist imperialism. In our time the whole globe is rife with dissatisfactions—in part as a direct result of the great possibilities for advancement which have been unfolded by our science and technology. Toward this dissatisfaction the Communists direct a barrage of propaganda which is effective in part because of its very simplicity: *destroy, destroy, destroy.*

Our part is the vastly harder one of patiently devising and teaching the means of constructive advancement. We need to study the means of eliminating economic barriers between nations, without undermining the areas which have built up prosperous living conditions. We need to encourage and assist the development of genuine democracy in free nations that lag behind politically, and to do it without undue interference in their internal affairs. We need to expand public health measures—while remaining aware of the dangers that rapidly expanding populations may exceed available food supplies. We need to teach people to read and write, while confronting the fact that enlarging their understanding of the world may increase their dissatisfactions unless we can at the same time help them to achieve a greater degree of economic well-being and political freedom.

In this context, internationalism assumes an unmistakable character of international brotherhood and a sense of global responsibility. Just as we now say that peace is indivisible (for a war anywhere may mean war everywhere), so must we reach the conclusion that prosperity is indivisible (for hunger anywhere can mean revolution everywhere).

Again let me put the matter as simply as possible. During World War II, American soldiers penetrated to every remote part of Asia and Africa—carrying with them radios, good diets, and Sears Roebuck catalogs. All the under-developed peoples of the world made the astounding discovery that the means of producing plenty for all have been discovered and developed. Naturally enough, they began to ask, "Why not for us, too?"

You may be sure that all the world knows that Americans are rich—far richer in all the ways that matter than they could ever have imagined. To Americans this may

seem like a long forward step in propagating the ideals of free enterprise democracy. To residents of California and Pennsylvania the lesson might appear simple: "We live in a system of free enterprise democracy and thereby elevated our welfare. Why don't you do the same, to win the same results?"

But there is another way of interpreting the wealth of America—and the Russians are busily exploiting it. This is to explain that wealth is positive evidence of greed, of selfishness, and of the unjust oppression of other peoples. The sad fact is that the Russian explanation makes more sense in many areas than Americans might suppose.

How does a nation or an individual become wealthy in a technological civilization? Put concretely, a man invents a new type of fountain pen (say, ball point pen) and manufactures it in such huge quantities that he often can make a profit by selling it very cheaply. Thus, everyone benefits. Millions of buyers get a superior product at a low price; and the manufacturer makes a profit. This is the way capitalistic industrialism works and its benefits are obvious to those who share in them.

But in non-technological societies, wealth is *accumulated*, not *created*. A man gets wealthy by acquiring agricultural lands, and by leasing them to tenants who are forced to share their crops with him. Increased luxury for one means increased impoverishment for many. This is the only pattern known to multi-millions of the earth's population. And this is why the very success of America and Western Europe serves as a weapon in Russia's arsenal of lying propaganda.

What I am trying to make clear is that the challenge which confronts the democratic nations of the world in

the Cold War in which we are engaged is a tremendously difficult one. To introduce the benefits of political freedom and technological efficiency into the under-developed nations of the earth is a complex and a laborious task. Years of educational endeavor must be integrated with public health measures, with gradually expanding employment activities, with better agricultural methods, and with a growing political sophistication. Meanwhile, we must face the fact that while peoples are preparing educationally to meet new responsibilities, their minds are opening wide to the great gulf which separates their living conditions from those in more advanced nations. Hence, the very program which leads to eventual improvement also helps to increase the impatience and dissatisfactions.

The program which the free world must follow in order to solve the problem of Russian imperialism is clear. It must be comprised of two strands, intimately interwoven: defensive measures against Soviet Communism penetration, and constructive efforts to improve the world's standard of living. Both approaches are absolutely essential. If we are to hope for success, both must be developed fully, carefully, and with full understanding of the inter-relationship of the problems.

So long as grave discontent exists around the world (and existing inequalities insure that the discontent will increase), Russia will continue to exploit it for her own aggrandizement. Meanwhile, the very measures that must be taken for the eventual creation of equitable conditions will, temporarily, increase the discontent. A prime example is the wave of "anti-colonial" sentiment that has swept through South-Eastern Asia at the very time Europe was withdrawing from colonialism.

In order to prevent Russia from nourishing this discontent into effective revolution against the free world—as she constantly seeks to do—such nations as the United States and the Republic of Korea must remain strongly armed, constantly alert, and ever ready to defend themselves and freedom generally from an outright armed attack. Also greatly needed is a far stronger program of counter-propaganda than is currently developed. But even more basically, what is indispensably required is an acceleration (rather than a gradual weakening) of the enlightened program of foreign aid and technological assistance.

In recent months many Americans have been alarmed lest the Russian achievements in technology (dramatized by its sputnick launchings) might persuade many uncommitted peoples that Communism is the wave of the future.

This suspicion illuminates the fact that the peoples of Asia and (I am confident) of other non-industrialized areas still are not sufficiently understood by Americans. To put the matter bluntly, we may be uneducated but we are not stupid! Living on the very edge of survival has at least one favorable effect: it sharpens the awareness of the distressed people to the difference between their friends and their enemies. I can assure you that Asians know the difference between tyranny and freedom, between the generous open-handedness of America and the enslavement policies of Russia.

Asians do not overlook the cardinal fact that during the years after World War II Russia enslaved 900,000,000 human beings—while the Western democracies granted freedom to 600,000,000. They do not ignore the difference between American economic aid and Russian political and military domination. They are not blind to the crass mate-

rialism of Communism, as contrasted to the idealism of democracy.

What has happened in my own country, Korea, is a living lesson of what is now happening in the world, and of what needs to be done to stem the advances of Communism, and eventually to roll it back.

By a misjudgment of Soviet intentions, Korea was divided "temporarily" at the time of Japan's defeat. Entrenched in northern Korea, the Russians launched a systematic program of genocide and built a puppet regime with which it tried to conquer our entire peninsula. In southern Korea, meanwhile, we have received generous assistance in building a democracy, in educating the whole of our people (so that now more than 95 per cent of all south Koreans are literate) and in gradually developing an industrialized economy. Much has been done, and what remains is for the United Nations to maintain its condemnation of the aggression and work staunchly and undeviatingly for the re-unification of our entire nation as a free democracy. It has been proved in Korea that Communism can be stopped; and I am confident we yet shall demonstrate that its imperialistic advances can be turned back.

The road that lies ahead for humanity is far from easy. It is only possible—not sure—that we may avoid the disaster of a total hydrogen war. It will be difficult—but, I think, inevitable—to spread the productive energies of industrialism to all the world. The balancing of population increases with increases in food supplies will tax our ingenuity, but it can be done.

Most of all, however, it is essential to avoid the cardinal error of compromising the basic principles of democracy.

Freedom is the great human good and must be protected at any and every cost. On this issue there can be no appeasement, no concession. *All men are created equal. All men are endowed by their Creator with certain inalienable rights.* It is this faith which is the hope of the world. From it there can be no retreat. For to lose that faith would be to deny the very tenets of civilization itself.

Reading As The Earth Writes

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> "A truly sobering thought is that the future which is foreseen is a future that will, in its time, be a present. This provokes the question of how that present ought to differ from this one."[2]
>
> "Americans must come to understand the relativity of American values. We naturally cleave to the familiar, to the ways of thinking and acting we have learned in our families and schools and jobs. But the worship of our own ways is the opposite of wisdom when international peace and order depend on the astuteness of our involvement in other people's affairs—and on our attitudes toward their involvement in ours."[1]

There is widespread concern about the ability of the American people to read the world of today and of tomorrow. Pressed on all sides by what seems to be a chaotic and unfriendly world, we have passed from a period in which we dreamt of isolating ourselves from the problems of other nations to one in which we recognize the fact that, whether we like it or not, we are intimately and directly involved with every nook and cranny of the earth.

This development is so recent, and its implications for reading so broad, we find instructional programs lagging far behind in the job which pressing world events dictate needs to be done. As a consequence, all of us are seeking

ways in which the school program in geography may be strengthened. We are asking ourselves how we can improve the effectiveness with which young people and adults learn to read as the earth writes.

Not only is the need to know apparent to us as we read of crises in France and Lebanon, of demonstrations against the United States in South American countries and in Russia, and of the fall of governments which we support in the Middle East. We see it in surveys and studies of American school youth and of adult citizens in our society. For example, a study at the Maxwell School of Citizenship and Public Affairs of Syracuse University of young people (average age of 22 years) who were going overseas to travel in Europe clearly indicated that "the full sample of 510 young Americans (studied) did not possess many of the elementary facts about Europe that one might reasonably expect of a group sufficiently motivated to travel across the Atlantic Ocean to get there."[1] Harlan Cleveland, Dean of the Maxwell School, suggests to us that the academic world lags so far behind what he calls the Real International World that we who are responsible for educational programs at all levels have a great deal of homework to do.

There is additional evidence of this lag all around us. The latest Purdue University Opinion Poll, for example, showed that: "a majority of high school students favor wiretapping and the 'third degree'; a majority believe that police should censor books, movies, radio, and television; 41 per cent see no reason for maintaining freedom of the press; 34 per cent would deny freedom of speech to certain people and 26 per cent would allow search and seizure without a warrant."[2] Surveys of this type, reporting similar findings, have received wide circulation during the past ten

years. They consistently indicate an appalling lack of understanding by both young people and adults of the real world in which we live and the problems which must be solved if our survival quotient is to be sufficiently high. Some of these studies are undoubtedly poorly conducted or inadequately reported to us. Nevertheless, the trend is clear and the need is apparent.

We can learn to read our world far better. As educators, we can and must reduce the academic lag. To do this, we must first address ourselves to several problems which tend to lower the effectiveness with which we conduct instruction in geography in our schools. The first of these has to do with the nature of the discipline of geography today. Modern geography is a far cry from the geography of even thirty ears ago, and it is much different from the geography of the 1800's and before. We need to consider the contribution to modern society which geographic study as presently conceived can make. The second problem is concerned with teacher education. It is a serious mistake to assume that we can make up for a lack of knowledge in a content field by proficiency in teaching technique. Both are essential to effective instruction. A major problem confronting teachers today is that geographic training at best played a very small role in their academic preparation for teaching. The third problem centers around the nature of reading, and therefore of learning, in geography and the types of educational experiences which will contribute most effectively to the development of geographic understanding. Rote memorization, which played such a major role in the teaching of geography in years gone by simply will not do any longer. Geographic knowledge, like the knowledge from other fields, is characterized by change rather than by any

static quality, and we need to ensure that learning in this regard does not overemphasize the relatively stable material at the expense of those things which are in flux. The fourth problem is concerned with scope and sequence in geography programs in the school. It is as essential to achieve balance in geography instruction as it is in other areas of the curriculum. We need to consider the elements in achieving such a balance.

The nature of modern geography. The word *geography* comes to us from the Greek. *Geo* means earth. *Graphy* means writing. Interpreted literally, therefore, the word *geography* means *earth writing.* Early Greek geographers set out to describe the known earth. Such descriptive writing reached its height with Strabo (c. 64 BC - 20 AD). They also early became interested in the mathematical side of geographic study. Eratosthenes (c. 276 BC - 194 BC), for example, succeeded in measuring the circumference of the earth with great accuracy. Ptolemy (c. 150 AD), drawing upon measures of geomantical location, succeeded in doing a fairly creditable job of mapping portions of the Mediterranean area. For the most part, however, the Greeks sought to examine the world which was known to them, to record their observations, and to conjecture mildly about them.

Unfortunately, this early geographic knowledge was lost to the western world until about the 16th Century. It was not until the latter part of the 1500's that Gerardus Mercator produced the first map projection to show the earth on a single piece of paper. From this early work we school people still suffer, for Mercator's projection has inclined many of us to teach the world as though it were flat instead of round and as though north were always "up" and south "down".

European scholars added rapidly to the rediscovered geographic contributions of the Greeks. This accumulation of knowledge led rapidly to the systematic study of related natural phenomenon. From these studies in the 16th and 17th Centuries grew such fields as physics, chemistry, and biology. And from this process of giving birth to new sciences geography became known as the "Mother of Sciences."

Modern geographic scholarship stems most directly from the late 18th and early 19th Century work of Alexander von Humboldt (1769 - 1859) — he of the Humboldt Current — and Karl Ritter (1779 - 1859). The first academic recognition of geography as a field of study in higher education in the United States took place at about the time Washington was making his Farewell Address. With expanding trade and with the rise of the public school during the 1800's the need for knowledge of the world became widely recognized. This was the period of "sailor geography" which emphasized information "thought useful for a merchant to know." Hence, geography became an important study in the school curriculum. The die was cast, it should also be pointed out, early in geography teaching toward the acquisition of encyclopedic data about the known world.

It was at this point that much of American geographic study and teaching took a divergent road from the European geography. By the late 1800's, when public schools were widespread in this country and tetxbook publishing had become a big business, geographic texts appeared in considerable profusion. Studies tended to be encyclopedic and emphasized the unusual. This was the "Great God in Nature" period. Arnold Guyot's famous *Physical Geography*, published in 1873, for example, begins as follows:

> The earth, as the subject of geographical science, may be regarded in two different points of view:—
>
> (1) In Itself, as a master-piece of Divine workmanship, perfect in all its parts and conditions.
>
> (2) In Its Purpose, as the abode of Man, the scene of his activity, and the means of his development.
>
> The first gives rise to the *Geography of Nature*, the second to the *Geography of Man*.

In the Geography of Nature, according to Guyot,

> (1) Descriptive natural geography, or physiography, is a simple description of the surface of the globe . . . It forms the basis for Scientific Geography.
>
> (2) Scientific natural geography, or Physical Geography proper, not only describes the various phenomena exhibited by the Earth as an individual organization, but seeks to discover the laws which govern them, and investigates their relations, causes, and consequences.

Guyot followed his introduction with a factual text, interspersed with line drawings of such famous sights as "The Giantess Geyser," "The Great Geyser of the Madison River in Yellowstone National Park," "Vesuvius in Eruption," "Earthquakes at Lisbon," "Waterspouts" observed near Sicily in 1827, "The Aurora Borealis," etc. Much attention was given to the odd or unusual. The superiority of the "White Race" and of "Western Civilization" was emphasized.

The late 1800's and early 1900's were characterized by a deterministic geography from which we have not yet fully recovered. Guyot's distinction between physical and human geography has also been a persistent factor during this period. We view geographic study and teaching today as a return

to what has been termed the "main stream" of geographic inquiry.

Modern geography concerns itself with the study of the differences which occur from place to place around the world. Its major tool for study is the *regional method*. A region is any defined area which is homogeneous in terms of specific criteria. The geographer studies within the selected region the interplay between man and that particular environment, the connections that area has with other regions of the world, and the similarities and differences within that area and other regions. The geographer seeks to develop concepts and generalizations concerning regions and connections between environmental factors over the earth. He does not limit himself to physical *or* human elements. Rather, since relationships between and among regions are cultural, biotic, and physical, he studies the interplay, or inter-relationships between these factors wherever they may occur.

What does this mean for the school curriculum? We need to discard the traditional view that geography is, after all, merely the study of the physical features of the world. We need, rather, to see it as a method of study and as a broad field of inquiry relating man and his activities with the physical, biotic, and cultural elements from place to place around the world. We need, in addition, to recognize that map study is not the sum total of geography. The need to learn how to read maps is central. Although the map is the primary tool of the geographer, it is an end result of study more than a means to an end. We can place the map in its proper context in our schools if we view *geography education as learning to read the differences which occur from place to place around the world* and the

map as the means by which the student summarizes and records his data, and from which he interprets data gathered by other geographers in his search for information about a particular place or thing in the environment.

The problem of teacher education. Most teachers in our public schools have had little or no training in geography. The last instruction received which bore a likeness to geography very likely occurred before graduation from the eighth grade. We tend, therefore, to remember geography the way we studied it and to teach it the way we were taught. Only recently have undergraduate and graduate programs in geography begun to flourish. The fact that, ten years ago, there were fewer than one thousand trained geographers in the United States means supply and demand are seriously out of step. This year, for example, it is estimated there are five positions for each new doctorate granted in geography. As a consequence, relatively few institutions across the country can boast strong geography departments. We are fortunate in California that the State Colleges and Universities have taken a positive stand in this regard. Geography departments are stronger here than in most of the rest of the United States. Private institutions in California are not as alert to the problem. Few have trained geographers on their faculties. For example, there is not one professional geographer on the faculty of any of the Associated Colleges at Claremont.

The emphasis in public schools on methodology or technique has had many positive aspects. Where it has tended to depreciate the need for the teacher to be scholarly and informed in subject areas, it has been deleterious. Because geography education has not been widely available, we are faced with a teacher population which is inadequately pre-

pared to do the job which needs to be done. There is a need, therefore, not only to include geography study to a greater extent in pre-service programs in teacher education but to place heavy emphasis upon geography education at the in-service level as well.

The nature of reading in geography and some implications for teaching. Reading with understanding the implications of a shrinking world and an expanding environment is a highly complex multisensory process. Need it be said that an adequate program can hardly be attained by limiting ourselves to the printed page? Our very lives are carried out in the context of geography. How well do we read this constant attempt to bend our world to suit our purposes?

To become proficient in this regard, a student may approach the task either inductively or deductively. The important element in such a learning enterprise is to go beyond the immediate, factual information — to formulate new concepts and to reach deeper generalizations about the world in which we live. Ultimately,

> There are two enduring things that you may hope to plant in the minds or spirits of children. The most important of these that endure its attitudes. Attitudes help to decide how we interpret the facts of life. Attitudes are perhaps the most important residue (after thirty years). The second important residue . . . may be a few big ideas about countries, peoples, and places.[3]

To reach these high objectives, the competent teacher helps children read the elements in his environment through a multisensory approach. This means the teacher involves the student in seeing, touching, in hearing, in tasting the world about him. He helps him to become, through the use

of all of his senses, a wise observer, researcher, and student of his environment—an environment which today encompasses the earth and the space beyond. He gets out of his classroom, in fact as well as in spirit, to view in the broadest sense of that word, the world about him. He observes, he reads, man in all of his varied activities—as a producer, consumer, and communicator, as a provider of services, as a protector and conservationist, as one with aesthetic interests and as an educator, as one who organizes and governs himself and as one who provides recreation for himself and his children. He helps students see man in the myriad kinds of relationships with other men throughout the world—in economic, political, social, cultural, and military relationships, for example. Finally, he helps the student read the ways man variously utilizes the natural environment throughout the world—the physical, spatial, and biotic resources within the natural environment which are molded and shaped to his particular purposes, according to his techniques and abilities, his cultural backgrounds and community mores.

The competent teacher seeks, therefore, to bring before the student a view of the world as it is today, to cause him to study it so that he appreciates its complexities and senses the broad scope of its problems. He employs the various senses and stimulates the intellectual processes in such a way that the impact of the study is vivid and not stultifying. More importantly, he constantly seeks to help the student develop concepts about the world and to become aware of some of the big ideas and significant attitudes which, for good or ill, are shaping the destiny of mankind.

Scope and sequence in Reading the World Today. The rise of the public school system, and the accompanying in-

crease in the student population of the United States, early brought demands for the inclusion of content for instruction which was thought to have social value for the society at large as well as for the individual. At the close of the 18th Century, several committees were formed to make recommendations concerning appropriate content in this regard for instruction in the school. It has been the bane of geographers that these committees were comprised almost completely of college professors of history. It is to this fact many geographers point when asked why geography is not more prevalent in the school.

Certainly, the composition of these now famous committees of Ten, Seven, and Eight (to name only a few), has had an influence upon instruction in the school. Content was suggested and textbooks were written to implement the recommendations. But it must be remembered, also, that we were going through a period in which our country was only beginning to become a world power. Nationalism and rugged individualism were the sine qua non of American life. In the face of a rising economy and an upsurge in our population, we feared we might lose the "American Way of Life." It was quite natural, therefore, that we looked to history instruction as a panacea—the cement which would bind us together in a common purpose.

We know now that there is no all-purpose subject in the curriculum of any school. In the light of new information about how youngsters grow and develop, and in the face of an abundance of new information contributed by the subject fields, educators are constantly striving to achieve a better balance within and between fields of instruction. Recognition of the need to read our expanding environment causes us to examine the extent or breadth of geographic

study and to establish some principles for selecting the sequence which such study might take in the school.

The complexities of man's interrelationships with other men and the natural environment of any particular region can only be hinted at here. To acquaint youngsters in school with the wide-ranging differences and similarities which exist throughout the world is obviously no easy task. Better diets, health care, and the like mean that young people grow faster and bigger and mature more rapidly than youngsters of a generation ago. Modern means of communication (TV, high speed presses, radio communications, etc.) bring the entire world to a level of consciousness at a much younger age than previously. With over two-thirds of our population living in metropolitan areas, it is virtually impossible for a modern day child to escape early, continuous contact with a much more extensive environment than we dreamt possible even ten years ago. The stage would appear to be set, therefore, for an earlier, more extensive and more intensive study of the modern world. Present curricula in geography, however, reflects the notion that the child knows or cares little for the world beyond his community and state boundaries until he is about nine, and he rarely studies areas outside of the limits of the United States until he is eleven or twelve.

In junior and senior high schools—almost half of the youngster's total public school experience—about half of the allotted time is devoted to American history, civics, and study of the Constitution. One year is given to world history and geography, another to such topics as Builders of the Old World, European History and the like. The final year often is comprised of a course called "Problems of Democracy" and, at best, some beginning work in other content

fields of the social sciences. It is rumored that our second largest state, Texas, displays a curriculum which is even more provincial. Nevertheless, it is a rarity for a student to take the entire six year sequence. More often than not, four years marks the maximum.

Such a curriculum is hardly suited to 1958 and the years ahead. Ralph Linton, the noted anthropologist, emphasized that "those who know no other culture than their own cannot know their own." Present social studies programs tend to concentrate out of all proportion in the study of the American culture and the immediate roots from which it sprang. It concerns itself—and this is a conservative estimate—with approximately one-fourth of the world's population, and even less of its total land mass. The seventy-five countries identified by the Committee for Economic Development[4] as underdeveloped are hardly mentioned in our schools, let alone studied in sufficient detail so that students learn something of the yearnings and pressures for a higher level of living and independence from foreign domination which persist in these countries. In this group alone we find one billion 150 million souls. Their per capita income (gross national income divided by estimated population) is less than $500 per year. Sixty of the seventy-five countries have a per capita income of less than $200 per year.

Today's crucial problems are being born in these areas of the world. In the near future, the fate of the free world will be sealed there. Since rational decisions depend upon an informed electorate, we must teach young people to read these areas of the world. At the same time, we need to increase the effectiveness with which we teach them to read their own country and those areas already included for study.

To read the earth as this writing takes place, we need to infuse within our social studies programs opportunities to study the real world of today as well as the history of how it came to be. In conducting these geographic studies with young people, we need to keep in mind four things: (1) the nature of the reading process and what this means in setting the stage for instruction; (2) the nature of man's activities within any region of the earth; (3) the manner in which man exploits the natural environment as he seeks to satisfy his needs in a particular geographic setting; (4) the nature of the interrelationships which persist between and among men in any one region compared with those in other areas of the world.

Developing Significant, Accurate Concepts and Generalizations About the Real World of Today

> Citizens must have a clear and accurate picture of their world as it really exists. They must understand, in the fullest sense, the facts which make interdependence of nations and peoples basic. They must achieve a vivid sense of functional geography, and thus come to recognize that they, as individuals, their community, and their country depend upon resources and products from every part of the globe. They must understand why it is impossible for any group of people to survive long in modern society isolated from others.
>
> Warren R. Austin

The development of these concepts is a long process. No one arrives at such ideas in one fell swoop. Beginning with the very early years, the youngster learns first to deal with simple ideas. Gradually, his thinking should become involved with problems and ideas of greater significance. But in this

process we often assume far too much. We as teachers often misjudge or give little thought to the accuracy of concepts developing within youngsters. How often do we use such words as "peace," "liberty," "democracy," "communism," assuming that the child knows and understands the big ideas behind them?

Similarly, we often overlook the erroneous conceptions which a child may hold of the world about him. Sometimes our instruction encourages the development of incorrect ideas. In the past, for example, it has been a commonplace to teach world geography through climatic regions, thus encouraging students to generalize inaccurately about the characteristics of areas and of peoples who live in areas defined, for example, as sub-tropical but which are in reality temperate, and which vary not only in the climatic factor but which, if the truth were known, differ primarily because of the level of living and technology persisting between the two.

A serious danger lies in the fact that much of school instruction today in geography defines the region as a political unit. Thus we cause youngsters to study Mexico, France, Canada, or some other political entity. We divorce it from the world at large, for the most part, and fail to see the cultural unity of the larger area in which every political unit finds itself. There is growing feeling on the part of geographers and educators that the cultural unit or region lends itself to the development of more accurate concepts and that it has inherent within it the value of relating the smaller area with the world as a whole.

Major Themes in Geographic Study

Throughout every major study, three underlying themes should persist. These themes, or big ideas, are expressed in the terms Conservation, Change, and Interdependence.

Conservation. Modern concepts of conservation emphasize *wise use* as well as the traditional concept of *saving*. It has been expanded, also, to include the wise use, or conservation, of human resources.

It is impossible to teach the idea of conservation, in all its ramifications, through a particular unit of study. Certain studies do contribute more directly to particular aspects of conservation than do others, however. For example, outdoor education programs (now being conducted for sixth grade classes in over 100 school districts in California) are especially suited to instruction in those phases of conservation dealing with watershed problems, maintenance of mountain recreation areas, balancing plant and animal life, and the like. Clearly, these are limited aspects of the total conservation problem. Other studies therefore need to be infused with emphases which will lead youngsters to an understanding of the concept of conservation which is broad in its scope and of sufficient depth.

Change. The persistent fact about man's occupancy of the earth has to do with the changing nature of that occupancy. The "facts" of geography, therefore, are constantly being modified. In the past, we have tended to teach for those things which were thought to be relatively unchanging. Thus we emphasized location of political units, production and distribution of agricultural and manufactured goods, trade routes, and various other facts and figures. But in so doing, we have encouraged students to think

statically rather than dynamically. Now many of us face a world with unseeing eyes—we are unable to recognize the changes which have taken place.

We want to teach youngsters that change is a characteristic of man's existence and that reading our environment requires constant modification of the concepts we hold about the earth. Anticipating change rather than expecting things to remain the same means that instruction should emphasize primarily the dynamics of man's relationships, not merely the facts and figures of his existence.

Interdependence. Benjamin Franklin once stated that "we must all hang together, or assuredly we shall all hang separately." What was true then for the American Colonies is even more true for the world community. Every geographic study is a study of the interdependence of the people of the world. It is up to the teacher to see that within each study youngsters explore this significant concept one step further. Only through constant contact with the facts and conditions of man's interdependence can we hope to develop the fullness of understanding which is implied in the term.

The Importance of Map Reading

The map is the tool which the geographer uses to record and report his findings as he reads the differences which occur from place to place around the world. The geographer uses many types of maps to accomplish this task. Since the model globe is the only true representation of the earth's surface, and since it is not always convenient to use the globe, he renders portions of all of it to a flat surface. When this takes place, something has to give. In other words, distortion occurs. A significant aspect of map reading has to do with understanding and interpreting flat, or distorted, maps.

To become an accomplished reader of maps, distorted or not, one must be something of a cartographer, or writer of maps, himself. In becoming cartographers, youngsters must engage in what has been defined by this Conference as primary reading, the reading of people, places, and things. Through discovery in the field, youngsters identify areal patterns. In the classroom, they record on maps of their own devising, the results of their primary reading. Through such experiences they can become adept at secondary reading — the reading of maps and globes constructed by others.

The sum of geography is often interpreted as being synonymous with map reading. Nothing could be farther from the truth. Only recently have schools had available already prepared maps and globes which could be read with some ease. The traditional difficulty experienced by teachers in teaching map reading is in large part a consequence of the type of tools available in the classroom. The "relief-like" map, upon which the cartographer has, with the aid of the artist, drawn mountains and valleys, plains and oceans, so that they represent much more closely the terrain as it really exists is a boon to map reading. New plastics make possible the production of light, accurate earth models. Despite the appearance of new materials of this sort, schools and classrooms are burdened with quantities of Mercator Projections, isoline terrain maps, and other maps which, at best, are extremely difficult to read, and at their worst, contribute to the development of erraneous concepts about the world in which we live.

Conclusion

Ignorance of each other's ways and lives has been a common cause, throughout the history of mankind, of that suspicion and mistrust between the peoples of the

world through which their differences have all too often broken into war.

Constitution of UNESCO

Teaching youngsters to read the differences which occur from place to place around the globe should be a first order of business in our schools. How well they learn this kind of reading is primarily a function of the instructional program which we plan for them in geography. The problems facing us in this regard give the appearance of being of staggering proportions. As teachers, we must look to the professional geographer for guides to our teaching. We must also recognize that we need to improve our own geographical understandings before we can teach youngsters to read as the earth writes.

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Science, A Creative Activity, and Reading

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Before I can invite you to consider with me some opportunities for developing reading skills in the teaching of science, I must invite you to consider carefully the meaning of science.

That great historian of science, George Sarton, wrote that "Many people, even educated people, have a great misunderstanding of science. These people often confuse science with technology — the fruits of which are abundant and rich beyond our dream." As with Sarton, I like to think of science as a "well ordered gathering of knowledge concerning the universe and ourselves. I like to think of it as a sacred contemplation and a spiritual fulfillment."

Now science is a great many things. It is a great many different things to a great many different people — even to those who are intimately working within its bounds. In my opinion, an expression of a definition of science rests upon the degree to which any individual understands its spirit of inquiry, its attitudes, the procedures by which science arrives at its great truths; and above all, the degree of recognition that science is a creative activity as its fellows search to find likeness in our world where only unlikenesses have confronted us.

Science, then, is a human activity; also, it is a great human function — the one function which sets man apart

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*"The Teacher Who Won't Answer Questions". *Reader's Digest*, Vol. 70, April, 1957.

from all other members of the living world. Science is not a special activity, indulged in at a special time, by special people, in a special room—the laboratory—where it is put on and taken off like a laboratory garment.

To me, the essence of science lies in the development and evolution of an attitude of mind. Dr. Jean M. Linsdale, the great student of Natural History, has said to me so often in his quiet voice, "science is an attitude," and Dr. C. B. van Niel, the Microbiologist, has replied, "of course, what else *could* it be?" In the progressive understanding of science as the development of an attitude, science becomes an intense, vital, integral part of the life of the individual, out of which a philosophy and an evolving sense of human values emerge.

Now with this understanding, a teacher of science has a great and grave responsibility to society. How can we as science teachers impart the spirit of inquiry and the great joy of discovery for one's self? It becomes imperative that as science teachers we keep alive that precious, inherent spark of curiosity on which the basis of science rests. We cannot do this if we teach science merely as a great mass of accumulated fact. This eighteenth century idea of science is completely outdated and outmoded at mid-twentieth century. I plead with you to recognize that man's accumulated knowledge and facts, both so important in the training of a scientist, are but tools. A way must be found to teach the great concepts of science in terms of human achievement, and that the verified facts are but stepping stones by which another scientist advances man's understandings. Thus the facts of chemistry, physics and biology are not ends in themselves but are as necessary to the structure which the student in science is building as are building stones to the mason.

These ideas bring us to consider the learning process. In a small booklet issued by the Massachusetts Institute of Technology, *You and Your Students,* it is clearly stated that the learning process consists of three steps: comprehension, recall, and use of ideas on a creative level. Now learning, in its true sense, does not take place until each student has mastered or experienced all three steps.

In my work as a biology teacher in a secondary school I have attempted to work with students in the classroom on the level of using ideas creatively. This has meant that I must provide in my classroom opportunities. I must provide opportunities for exploration and discovery. This cannot be taught from a textbook in the hands of the student. I must provide opportunities for students to use factual information in new situations. This involves comprehension of factual materials and a wide use of a technical vocabulary. There must be opportunities to collect and then interpret measurable data. This involves simple mathematics at times. It involves critical analyses in which errors are frequent. We use these opportunities to build self-confidence.

I have found that students are most often deterred from success by a gripping fear — fear of making a mistake. In science as in no other class, perhaps, an error serves as impetus to greater striving. We learn from our mistakes as we can learn in no other manner. I, the teacher who is true to my understanding and knowledge of science, must help these young people understand that it is in the nature of science to sometimes be mistaken. J. Bronowski says "Science itself is a predictor mechanism in process of continual self-correction. Let us not be contemptuous of mistakes, they are the fulcrum on which the process of life moves." As their teacher, I must try to help these young people reach

the point where they can experience for themselves in their work in science that "the *act* of judging is more critical than the judgment" and that *arriving* at a concept is more important than the facts that have been expressed.

This then puts life in science teaching. I challenge that teaching in science which is an endless repetition of facts—worthy and truthful though they may be. We are cheating our young generation when we deprive them of the great joy that comes from discovery for themselves as they rediscover an already known truth.

We say that the essence of science lies in its uncompromising search for truth; it accepts no authority save in the accumulated and verified evidence. Thus searching for truth in science becomes man's great creative adventure—an exploration that can never reach a final answer. Science, then, as a method of searching, enters the human spirit with a great unquenchable longing. We call this "the spirit of inquiry" and it is based simply in human curiosity which forms the drive and becomes the key to a lifelong search and a lifelong devotion.

The conditions under which this spirit of inquiry can flourish are simple but uncompromisingly essential:

Independence of mind
Originality of thinking
Freedom with responsibility to explore
Freedom to make mistakes
Freedom for dissent
Lack of credulity
Respect for the work of the other person

Before we can read in science I have found that it is essential to establish a classroom climate in which the spirit

of science prevails. Then I can be flexible in my requirements of each individual. A student who can read verbal symbols has achieved to one level; a student who reads with auditory sense alone and who has not mastered visual reading finds a place in our classroom society, and makes his contribution to it.

Now, what do we read in science? We decide this by the needs of the problem to be studied. Perhaps we need a reference book; perhaps we need original scientific research, so we go to my reprint library. Perhaps we do not need the written language at all. We may need to go out-of-doors and read the records in the rocks; the record of a recent rain storm that carried its loads of fine silt and sand. We read the record that has left a 50-foot deep, 100-foot long gashed cut against a wounded hillside. We read weather instruments and keep a daily written record. On other days, we read the kinds of plant and animal associations that march up a hillside and we try to find the environmental factors that are responsible for a sudden change in vegetation.

In the laboratory we read the differences and the likenesses between two demonstrations set side by side in which an experimental factor has been isolated.

One boy has chosen to read a hillside story to determine for himself the reasons that a species of dwarf cypress tree grows on an isolated island completely surrounded by pine. This species grows upon this hillside and grows no where else in all the world. It is an exciting story that this boy is eagerly reading as he unfolds page after page of careful measurements. Another student went to a temporary pond in a pastureland and read accurately the story that he found. He brought to class a small worm, undiscovered, unstudied, and unnamed in science. A world famous invertebrate zoologist

credited him for his collection and then named and described it as a new species. His question had been "What is this? I have never seen this animal before." He read correctly the animal that he had found. Exciting readings!

As the students in class discover a wealth of stimulating ideas in biology, reference to written materials is constantly necessary. I invite the student to explore source materials in order to widen his horizons. At this point, I serve in the role of consultant; I aid each student in making his choices in terms of his proficiency of comprehending verbal symbols. I find that this is an unusually fine opportunity to work with the individual in order to meet more satisfactorily his immediate need.

Now, a student who is inspired to go to written works for further exploration goes far deeper into the subject, covers more factual materials, seeks and compares several authors, and does this with far greater sense of personal responsibility than if, foolishly, I assign the reference. This procedure recognizes that students are at various levels of learning, accepts the premise that each student progresses at his individual pace, and requires that each student's progress and accomplishment be judged accordingly.

Within the framework of our subject-matter content I provide opportunities for a wide range of reading skills. I have had students in an eighth grade science class who were word-reading on the second year college level. I have had many ninth grade students capable and eager for regular verbal reading in SCIENTIFIC AMERICAN. I shudder when I contemplate the damage I can do to kill enthusiasm for science, in these young people, if I fail to provide the challenging materials that are often referred to as "beyond their level".

In planning a reference library shelf for verbal reading, I provide for those students who will need illustrative materials as well as word symbols. I am humbly grateful to Charles W. Schwartz who has provided one such book for class work in Conservation. In *The Prairie Chicken in Missouri* are new pages from our old American family album. These portraits of the prairie chicken, lineal descendant of one of our first families, are as reminiscent of the pioneer days as the shadowy old daguerreotype and crayon portraits of our sturdy forefathers. In its sparse survival lies a romantic story. With only short verbal captions for each magnificent photograph, the eloquent story of a species struggling for survival is graphically told. Students—those with limited verbal reading and those who excel—find common grounds for appreciation of the greatness of this volume and grasp the challenge of the content. This is not a "*picture book*" but an unusually well chosen collection of exquisite camera studies which create for the reader the sequence of the life history of a species. The beauty, message, and creativity of the author's work is well received and is a long-remembered experience.

In my opinion, a science teacher has the greatest opportunity for providing a wide range of reading experiences that lead students to the point of making discriminative responses. I have had richly rewarding gains as I help students in science to develop a wide range of reading sensitivities.

Let me quote once more from J. Bronowski:

"It is wrong to think of Science as a mechanical record of facts, for what makes science human and what makes it universal is the stamp of the creative mind." The scientist takes two facts or experiences which are separate, he finds in them a likeness which had not been seen before; and he

creates a unity by showing this likeness. "This act of creation is therefore original, but it does not stop with its originator. The work of science is universal because each of us re-creates it." As students in my laboratory classroom, we have the opportunity to be moved by the works of a creative person as we explore. In the works of scientists we discover again and seize the likenesses which their creator first seized. "This act of appreciation re-enacts the act of creation"; and in this re-enactment we are in ourselves expressing a creativity in our work.

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Reading Glaciers and Their Influence on Man's Environment

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The oldest rocks that have ever been found indicate an age for the earth of several billion years, but these rocks give us little information as to the conditions on the earth at that time. However, the earth's history can be traced back some billion and a half years reasonably well by geologists. Of course, the older records are scarce and difficult to read. Suppose we imagine this vast period of time as a single "year". Imagine that a billion and a half years ago it was "January 1", the present moment is the stroke of midnight on "December 31", and that the entire history of the Earth has been telescoped into the "365 days" between.

During practically the whole of that year, according to geologic evidence, the climate of the earth was much more genial and uniform than it is in our time. The Earth experienced a long succession of balmy weather. Toward the end of "April" of our imaginary year, there was a brief, severe cold snap lasting a matter of hours on our condensed time scale. It was actually an ice age. In the latter part of August there was another cold snap; still another around the middle of November; a somewhat less severe one about the middle of December; and finally another severe one beginning along toward this evening, December 31, about dinner time.

In our condensed time scale, man appeared on earth about 6 hours ago on December 31, and he began to keep

historical records of his activities about 1 minute and 12 seconds before midnight. Thus, he came here in an ice age, which we have called the Pleistocene Epoch, and he has never known any other kind of climate. Of course, we may have missed a few cold snaps, but the fact is that all of the ice ages put together have lasted less than 3 days out of the year on our time scale.

The Pleistocene Epoch, of a duration of about one million years, has seen four great advances of ice where much of the northern portions of North America and Europe were covered with great ice sheets. Areas in the Northern Hemisphere which were ice-covered during the Pleistocene glacial stages and are ice-free today are said to cover over 100 million square miles and are distributed around a latitude of 60° north. Between each of these great advances of ice there were long periods from 100,000 to 200,000 years during which the ice possibly all melted or nearly so from the face of the earth. At the present time, we seem to be emerging from the last period of ice cover called the Wisconsin Age. Carbon 14 datings of wood imbedded in these moraines indicate about 18 thousand years have elapsed since the farthest extension of this ice sheet which then lay over Canada and centered near the Hudson Bay region. The southern edge of this sheet extended well down into the northern part of the United States. The mass of ice was so heavy that the land surface was depressed below its normal isostatic balance. The area in Canada which was under it, is still recovering by a slow rise of the surface of several inches per century with a corresponding depression of the land around the former edge of the sheet as rock at greater depth flows back into place under the crust which was depressed by the weight of the ice.

About 6 million square miles of the earth's surface is still covered by ice, and it is estimated that there is enough water locked up in ice sheets and glaciers today to raise the sea level as much as 200 or 300 feet which, if released, would inundate a great deal of our rich and heavily populated land areas.

With 6 million square miles of the earth still covered by ice, it is evident that we have not yet emerged entirely from the last glaciation. Whether the Wisconsin ice age will be followed by another one is anyone's guess unless we can find out the causes of glaciation; then perhaps we can predict whether another ice age is likely to follow.

Human beings then, have seen only the more violent moods of the earth. They were not here during the immense stretches of time when it was comparatively quiet and peaceful. In fact, I have often wondered if it isn't this very fact that may be responsible for man's elevation from the unaware, unreasoning state of the other animals to what he is today where he is at least able to speculate upon his origins. To delve into this area of speculation for a moment, perhaps it took the colder climate of the Pleistocene to bring man out of his lethargy and, by forcing him to seek shelter and clothe himself in order to survive, the balance was swung to the side of further mental development.

Who can say when and where men really became Homosapiens, but it does seem certain, at least, that it was somewhere on the mass of land joined together as the Eurasian and African continents. Man's history is practically coincident with the Quaternary Period, which is made up of the Pleistocene and recent epochs. Man left little trace of his presence in the early part of this period, but his records became relatively rich as time advances. At one time he lived

in caves in the Alps above the highest evidences of ice in the valleys, suggesting his presence during a time of intense glaciation. Artifacts incorporated in moraines of England and elsewhere yield a story of migrations conditioned by various advances and retreats in the ice front. In the geologically recent portion of his experience, during which he has progressed through a cultural development which has culminated in such scientific advances as the placing of artificial satellites around the earth, he has witnessed a slow amelioration of an extreme glacial climate, but he has at no time experienced the normal climate indicated by most of the geologic record.

Probably man never reached the Americas until the waning period of the last ice age, perhaps no longer than 15,000 years ago. This would be a logical time, as there would be dry land where the Bering Strait is today or the water so shallow that it might be completely frozen over most of the year. Today sea level need be lowered only 180 to 200 feet to form an isthmus between Asia and North America, and I am sure more water than this was taken from the oceans to form the ice sheets. However, it is quite certain that little difficulty would have been encountered by tribes living in the northeastern part of Asia as that part of Asia and Alaska was not glaciated during the Pleistocene Epoch.

An interesting parallel story, but in reverse, is the one of the horse, which evolved and developed from the little three toed Eohippus of about 50 million years ago on this continent to the modern horse of today. The horse lived only in the Western hemisphere until sometime during the pleistocene when this animal apparently migrated to Asia from North America via the Bering Strait region at a time

when sea level was lowered below the bottom of today's strait. The animal became well established in Asia and Europe and then died out completely in the Americas, only to be returned just a few hundred years ago by the Spaniards.

These huge ice sheets, with the large frozen areas of the oceans, no doubt influenced the climate and wind patterns on a world wide scale. The marine influences on climate are well known, the most significant effect being the tendency toward uniformity of temperature. Ice on the ocean is more fixed in position and in many ways resembles land surface from the climatic standpoint. The effect of an open arctic ocean is that of adding area to marine climatic influences, but a polar ice cap has a different climatic effect similar to an addition of continental area, which makes for comparatively rapid and violent changes in temperature. The balance is so delicate in terrestrial climatic patterns that a swing from one condition to the other—a polar ice cap or no polar ice cap—means from normal to glacial climates for the whole of the earth's surface. It has been calculated that lowering of polar temperatures 5°F under the freezing point ultimately results in a drop of 50°F in polar winter temperatures. A rise of 2°F in the temperature of the Earth now would probably be sufficient to clear polar seas of all ice. We are thus in a world where the balance is extremely delicate between normal and glacial climates.

I have spoken about the historic and climatic influence of glaciers on our environment. Another influence imposed by glaciers on Man's environment is that they always modify and change the landscape over which they pass. In places, glaciers have scraped off all soil and left only bare rock on which nothing will grow. They have left us some of our most beautiful and spectacular scenery such as Yosemite

Valley and other glaciated mountainous regions. They have left basins for lakes, the largest example being the Great Lakes and they have been indirectly responsible for some of our richest farming districts, where wind blown and water carried outwash material of decomposed glacier debris have given us very rich soil, especially around the periphery of the former ice sheet in the Mississippi Valley region which is literally the bread basket of our country.

In some parts of the world towns and farming areas are dependent on the water discharged from glaciers and many hydrologists all over the world are concerned with this important form of water storage.

We have every reason to believe that glaciers are among the most sensitive climatic indicators in nature. The snow and ice strata deposited from year to year provide the nourishment of the glacier, and annual variations in accumulation and melting reflect into advances or retreats of the ice front, which in turn constitute a clue to the climatic trend. During times of equilibrium when the glacier front is stationary, rocks and sand of various sizes accumulate at the front into a moraine which leave a record of the glacier's position when it retreats. Thus, the earlier climate can be postulated. We learn more every year about the climatic conditions which maintain a given sized glacier, and about their nourishment and wastage.

In order to acquire some idea of the present state of a glacier, the total accumulation is measured by digging pits and measuring the average thickness and density of the annual layer. On some glaciers the annual layers are easy to identify because the accumulation of snow falls only during the winter months and dirty bands representing the summer melting season are found. These are caused by an accumula-

tion of dust deposited by the wind and concentrated by melting of the upper surface of the previous winter's accumulation of snow. On ice sheets far from sources of dust, and where there is little if any melting during the summer months, such dirty layers are usually not found, and it becomes much more difficult to distinguish between the annual layers. One must then resort to a study of grain size and orientation and intergrain relationships to separate the layers. Utilizing the average density and thickness measured at selected locations and the area of the firm or accumulation field, the total accumulation can be calculated. The losses can be calculated by measuring the average thickness of ice lost by melting in the ablation area where wastage is greater than accumulation. Of course, all forms of loss must be considered, such as the discharge of icebergs into the ocean, etc.

If a glacier is in equilibrium; that is to say, the accumulation equals the rate of wastage or ablation, its total mass will remain the same. In general, with this condition, the glacier remains the same length and the same thickness. If the losses exceed the gains, the glacier will thin and retreat, and if the accumulation is greater than the losses, it thickens and increases in length.

We are also very interested in the movement of glaciers, and besides measuring the rate of flow along various surface profiles, we would like to know more about the flow at depth. Such studies have been attempted by drilling holes and studying their movement and deformation. These and other studies have led to the formulation of ice flow laws which are now being tested in laboratories by several groups of workers in Europe and in the United States.

During the International Geophysical Year, glaciolo-

gists and meteorologists of many nations are studying most of the known ice areas of the world, including the great ice sheets of Greenland and Antarctica and a large number of valley glaciers from polar to equatorial regions. Ultimately, comparison of data accumulated through these world-wide studies will permit a better understanding of past and present epochal climatic variations. Moreover, implicit in an accurate knowledge of present trends are clues to future climates.

In connection with the International Geophysical Year, United States glaciologists are encamped on glaciers and ice fields in Greenland, on the frozen Arctic Ocean, in the mountains of Alaska, on a small glacier in the state of Washington, and on the ice shelves and ice sheet of Antarctica, in a broad program designed to map not only the extent of the glaciers and ice, but also to understand their flow and their relation to and effect on the local climate. One of the objectives is to evaluate the influence of the 5 or 6 million square miles of ice in the Antarctic on the present world weather picture. Twenty-seven other countries are also making observations covering all the known ice areas of the world, including glaciers on the equator.

Technical advances and discoveries have already been made in these two greatest reservoirs of ice in the world, Greenland and Antarctica. In Greenland, scientists of the U. S. Army's Snow Ice and Permafrost Research Establishment have perfected techniques for drilling deep holes in the ice with hollow drills to obtain a core of ice for further study. They have succeeded in drilling to a depth of 1438 feet in Greenland and went to about 1000 feet at our Byrd Station in the Antarctic just last January and February. From the first hole in Greenland, the 1912 layer was identi-

fied by the ash from the eruption of Katmai Volcano in Alaska. It is hoped that the dust from the great explosion in 1883 of the volcano Krakatoa, in the East Indies, will be found in the Antarctic cores. Next summer, Antarctic summer that is, they expect to take cores from the Ross Ice Shelf at Little America. Cores below about 1000 feet are difficult to obtain because the sudden release of pressure caused by the weight of the snow and ice above, tends to shatter the cores. The cores will be studied with great care in the laboratory, for they are valuable indices of climate and precipitation over the past years.

Although geologic study reveals that the Antarctic ice mantle was once about 1000 feet thicker than it is now, it is not yet known whether the total ice mass is at present increasing or decreasing. A large body of detailed glaciological and micrometeorological information from both the fixed stations and a broad network of over snow and airborne traverses must be accumulated and analyzed before final conclusions can be reached.

United States scientists at two locations in the Arctic Ocean drifting on floating ice, are making studies of the freezing and melting of the ice pack and the radiation received from the sun and sky and the amount of radiation absorbed by the ice and what proportion is reflected back away from the snow or ice surface. These observations along with many others will be placed in their proper perspective when all the information on radiation from the sun, ocean currents, and temperatures of the air, ice and ocean has been studied. In fact, the major objective of the International Geophysical Year is to make simultaneous measurements over the whole earth in the various fields of geophysics in order to correlate all possible phases of the studies

being made. This can be accomplished only through the combined efforts of the 66 nations cooperating in this magnificent effort.

Although 11 nations have established 38 new scientific stations in the Antarctic for the IGY, observations made at these widely-distributed stations can furnish only a portion of the geophysical data needed for a complete understanding of this huge region of ice and rock. To fill some of the major gaps, a series of oversnow scientific traverses were organized as part of the US-IGY Antarctic Program for the summer season of 1957-58 and 1958-59. Teams of glaciologists, seismologists, and supporting personnel are traveling by tractors and special oversnow vehicles thousands of miles across the ice in this series of traverses to obtain the thickness of the ice and to learn something of the underlying terrain. The surface ice is examined by taking samples and determining the density, the hardness, and making temperature and heat conductivity measurements. The annual layering is determined in order to calculate the accumulation rate which is necessary along with many other measurements to give us some idea whether the ice sheet is growing or shrinking. It is also a clue to the amount of ice being discharged as icebergs into the ocean which must eventually melt in warmer waters.

Spheres of Influence and Educational Patterns

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From the San Francisco Chronicle of June 14, this year of 1958, I direct attention to this question: "I have been told that America is a Christian nation. If this is so, why is there so much crime and immorality here where there are more churches than anywhere in the world?" And its answer: "There is no such thing as a Christian nation, nor can there be. Only *individuals* are capable of becoming Christians."

I sincerely believe that there is an important message here for every educator regardless of race or creed. My thoughts are redirected to the Massachusetts Deluder Law of 1647. Expressed in that law were concepts upon which our system of public education was founded, important concepts implied in the question and its answer as previously quoted.

By the Deluder Law, individual responsibility for salvation was substituted for that of the priesthood, the authority of the Bible was substituted for that of the church, and the need for the individual to read the Bible was established.

The need for individual proficiency in reading for comprehension was expressed and the concept of individual accountability for thought and deed proclaimed. Thus schools were established by law at the local level for the purpose of educating children in a manner fitting them, as free men, to guide their own spiritual destinies.

The Constitution of the United States has since separated church and state, and interpretations of the constitution have withdrawn the Bible from most public school classrooms; however, the principle that is important to us as educators remains; *only individuals are capable of becoming educated.*

In theory the concept of the individual learner has been, and is, recognized. Evidence of such recognition can be found in reports of superintendents to school boards, in statements of philosophy introducing curriculum guides and courses of study, and expounded in education courses in colleges and universities. In practice, however, this important principle is nullified by policies of social promotion; and the failure, or inability of teachers to identify themselves with the individual pupil in the teaching-learning process, and to hold pupils accountable for the learning process.

Accepting the fact that learning is an individual achievement, we must forever be on guard against the theorists who would have us believe that education is a mass production. We must awaken to the fact that social adjustment is also an individual process and that it entails far more than just being a member of an age group. It is being able to know self-respect because one can perform according to the demands of society upon that group. Perhaps one of the greatest fallacies in all educational theory was the belief that chronological grouping would lead to social adjustment.

We must forever seek ways of relating lessons and teachers to pupils on a one to one basis. We must also make it clear to parents and their children that *learning is the responsibility of the child,* and that there is no easy way.

To be practical let me describe experiences in my own professional practice. When doing demonstration teaching at all levels of elementary and secondary schools, I request that each pupil wear a name plate. Before starting to teach, I speak to each pupil. This personal contact takes three to five minutes and is an invaluable part of my work.

At the beginning of the lesson I talk about the nature of learning, helping the members of the class understand that all learning is individual and personal. Education is described as an interactive process, a sending and receiving activity. Care is taken to help the pupils understand that they do not learn as a class but as individuals. I let them know that each one will be expected to contribute, to participate. During the lesson period I am careful to see to it that each pupil does take an active part. Before concluding the demonstration a quick review of the lesson is presented and attention is directed to individual contributions, their strengths and weaknesses, with suggestions for improvement as time will permit.

In conference, after such demonstrations, teachers express their surprise that certain members of the class did take part and many teachers express their belief that only an expert can get such results. This is not true. Any classroom teacher can apply the same methods and get better results because she possesses a greater knowledge of the individual members of the class, and she has had time to establish rapport that I must develop in a matter of minutes.

In the demonstration several factors are at work. In the first place, I share with the class my staunch belief that each one wants to learn and will therefore participate. It is stupid to attend school, spending time and money on

education and then be passive about the process of education; and these young people may be guilty of being mischievous at times but they are not stupid. I make the pupils aware of the fact that all learning is individual and charge each one with the responsibility of learning.

Weeks, even months later, members of these classes talk with me in the school corridors recalling the lesson and many times, their specific responses. I am invited by them to return, such invitation coming despite the fact that I have worked the class hard and permitted neither foolishness nor "goofing off" during the demonstration.

At the college level, with classes of eighty or more, this one to one relationship and individual accountability can be established, for I have done it many times. A personal inventory is taken at the first session of the class or at the time of registration. It is analysed and used as the basis for the presentation of materials and as a guide, enabling me to relate material to individual needs. Such statements as the following are used: "While the entire group will find this information, or technique, of interest, I believe that it will prove to be of unusual value to Mrs. Ward, Miss Timothy, and Mr. Bowen." Before and after class I talk informally with individuals. Records of such contacts are kept and reviewed to the end that a relationship is developed with each student. Manifestly such lecture preparation is time consuming, but it is time well spent for it brings the most rewarding results to be found in our profession.

Some instructors have indicated that this is too much to expect of them. I strongly disagree and propose for your consideration the premise that the acceptance of such responsibility is inherent in the acceptance of a degree in education, or a credential to teach.

Referring once again to the question and answer with which I opened this presentation, I comment upon the fact that it was published on Flag Day, June 14. This was, I realize, a mere coincidence, but nevertheless it is a fact and one which carries, for me, symbolic importance. As educators you and I have a professional responsibility to give to this nation the very best possible service. It is our challenge to educate the young people entrusted to us, to take their places in our democracy; to help them become spiritually awakened, by precept and by the presentation of inspiring art, music, literature, and the history of mankind's quest for peace; to help them gain proficiency in the tools of self-education; to help them attain true social competency through self-respect—the genuine self-respect that comes through honest achievement.

I have heard fathers admonished to keep ever in mind that the integrity of America begins in the home. I would add that that integrity which begins in the home must, if it is to become an integral part of the individual child character, be extended into all parts of the community with emphasis upon the importance of integrity in the schools he attends.

Although I respect the rights of those who champion social promotion and defend their right to their opinions, I must say that I cannot see basic integrity in such a policy. When trying to analyse the thinking that results in such a policy, I am aware of the compassion of those who believe that social promotion leads to social adjustment. If such were the case, if being summarily pushed from grade to grade with an ever increasing gap between expectancy and performance did indeed bring about social adjustment, then the rate of juvenile delinquency would have declined great-

ly during the past twenty years. Quite the reverse is true. As the gap between the child's achievement and the achievement of those in his chronological group grows greater, the child's self-respect grows weaker and his respect for society lessens. Anti-social acts express his frustration.

If social promotion has grown out of the single track program thought consistent with our democracy, then I can only redirect attention to my definition of democracy in education presented before this conference at a previous assembly: "True democracy in education provides for each child opportunities equal to his capacity and achievement."*

When the gap between achievement and assigned grade level increases, the value of the educational offerings to the individual is devaluated, just as the value of the dollar is devaluated when the gap between the cost of labor and quality and quantity of production widens.

Sincere educators the nation over are seeking to serve their country better and represent their profession more adequately by offering crash programs in particular subjects. I propose to you that little lasting benefit will come from such effort, no matter how sincere. This obligation of my profession, as I see it, is an examination of its entire program of offerings and the development of an educational pattern that will truly challenge every child.

Somewhere among the youth of today are minds capable of discovering ways to world peace, ways to deeper and more fulfilling lives, ways to new appreciation of beauty in art, literature and music, just as there have been minds capable of splitting the atom. Ours is the task of breaking

*Claremont Reading Conference Yearbook, Vol. 21 (1956), pg. 90.

the thought barrier which keeps our young people from realizing their creative potential. And as long as there are people engaged in educational pursuits, educationists, who believe it undemocratic to free the minds of brilliant youth, our nation is in jeopardy. I believe we must have a solid citizenry supported by feelings of adequacy brought about through honest achievement. We must reach the individual.

Patty Sullivan and her mother came to me with an educational problem. It was a serious problem, one affecting her future, one calling for far more skill and wisdom than I felt.

School had closed the day before and Patty had come home red-eyed and unhappy. Her junior high school days were behind her. Without speaking she handed her report card to her mother and then rushed to her room. A quick glance at the card showed a straight A record. Grades, then, could not be the cause of Patty's unhappiness.

While comforting her daughter as best she could Mrs. Sullivan heard her heart-break story.

"It was just awful, Mother. One of the girls grabbed my card and read it out loud to all the 'kids'. They made fun of me. I'm a 'square'. Nobody will even look at me in high school."

Mrs. Sullivan, with the wisdom of ages behind her, spoke no word, letting her presence and her soft caress communicate her mother's love and concern.

The tempest spent, Patty spoke again, "I'll show them! I'll get all D's in high school. I'll show them I'm no 'square'." The tilt of her head, her flashing Irish eyes revealed determination. Mrs. Sullivan was confused and apprehensive lest

Patty, in her great desire to be one of the "kids", carry through with her pronouncement and thus deny herself scholarship opportunities, opportunities important to her future for the Sullivans are not in an economic bracket assuring Patty a college education.

Thus Patty's shining hour of triumph, of glowing self-satisfaction at the completion of a job well done was marred by the sphere of influence engendered by the philosophy of the school system in which she was enrolled. A system reflecting a national lack of respect for scholarship, a system that rewards the sluggard as richly as the scholar. A system that has been interpreted to mean you are truly a "square" if you work at this business of getting an education.

Together the three of us talked. My role was to help Patty see that her personal goal, that of becoming a dietician and home economist, was worth the candle. To try to assure her that in the high school receiving pupils from several junior high schools she would find other young people like herself — good students. Yes, even boys, especially boys who would be seeking scholarships in science.

According to the national press, lay leaders are alarmed over the great number of young people of normal and superior intelligence who drop out of high school, or who fail to go to college upon being graduated from high schools. Many cannot understand this phenomenon.

I, too, am concerned. I think that I do understand. Young people of Patty's sensitivity and intelligence want to succeed and they need recognition. They are intelligent and adaptable and can win success in retail sales and services just as soon as they are old enough to be employed. If they

remain in retail sales they may advance to a five figure income in a relatively short period of time. Although they gain in material purchasing power and in short term inner satisfactions, I cannot help but feel that they lose in the richer satisfactions that should accrue to those who benefit from the greater disciplines of advanced study.

You and I lose, too, when these young people terminate their schooling short of their capacity. We lose the best potential of outstanding intellects. Once again, my plea is for higher standards at all levels of education and for honest recognition of achievement. A philosopher has said, "What a nation honors, it cultivates." I solicit your help in giving honor to achievement.

"Dig that crazy horse with wings! That's no trade mark for gas, should'a used a rocket or somethin' like that."

The speaker was a high school boy, a member of a language arts group, an achievement section studying a unit on newspapers and magazines. Display advertising was under discussion. A little informal investigation bore out my conjecture that these mentally superior children had no knowledge of the great myths and legends.

Inquiry made of administrators in charge of curriculum brought the following response. "Children of that age, and this day and age, have absolutely no interest in myths and legends. They'd completely reject them. Their attitude toward such dead material would create discipline problems."

The opinions of these curriculum directors were reiterated by other persons engaged in determining curriculum content in this and other districts. Distressed by the poverty of the curriculum offerings and challenged to action by the attitudes expressed, the very prejudices of persons

in places of authority, I helped to plan, introduce and present a unit on myths and legends.

The response was terrific, our problem was not one of stimulating interest and gaining acceptance for the unit but rather one of trying to bring it to a close.

Searching for a textbook had brought to light, "The Magic and the Sword" written by a California educator, Miriam Cox, illustrated by Harold Price and published in 1956 by Row, Peterson and Company. We had only three copies for the entire group. To my delight students brought their own books to class. Home libraries were raided and second-hand book stores ransacked.

General literature came into sharper focus. When, in a biographical sketch, Thomas Edison was referred to as a modern Prometheus, the young readers found the passage meaningful to them. Before the study of myths this reference would, of course, have been without significance.

For the balance of the semester, students commented on terms used in advertising, art, astronomy, anatomy, botany, chemistry, geography, home economics, industry, literature, medicine, music, philosophy, physics, and zoology stemming from the myths and legends. Without prompting "original" myths and legends were submitted as compositions. Truly the lives of these pupils have been made richer by this unit of work.

Conditions such as this one describing the omission of myths and legends exist to a degree in many schools and in many areas of curriculum. That children left on their own in the selection of books read to satisfy outside reading requirements seldom venture into types of literature

new to them is evident. An examination of several hundred reading cards at each grade level—seven, eight, nine and ten, showed that there was indeed little change in preference and little venturing into new types of literature. Interviews with school librarians brought this kind of response, over and over again, "I buy and buy animal and adventure stories and still never have enough to answer the demand. I've almost given up in my quest for the best and find myself ordering any title that I think will be withdrawn. When I do buy good books in other interest areas they just sit on the shelves. A TV program based on a book or play brings a rush request for that book or play, and an occasional teacher-assignment for type literature brings more requests than I can answer. The rest of the time I can predict quite accurately the kinds and numbers of books that will be withdrawn."

To remedy these conditions, to broaden the reading experiences of children and prevent runs on particular types of books, the familiar reading wheel was introduced with one or two innovations. Since ten outside reports were required, twelve spokes to the wheel were established. Each student could therefore exercise a certain amount of judgment and choice by omitting two types of literature. Each pupil had a reading number assigned to him, a number from one to twelve. At the beginning of the year each pupil began to read in the category corresponding to his reading number, or if he chose to omit that number he was free to progress to the next number clock-wise. These controls did broaden the reading experiences of children, equalize the withdrawals from the library and allow the librarian to spend public funds for much better book selection. The teacher kept a running survey of types of books omitted and then made these types the focus of classroom presenta-

tion in cases where it was deemed wise to do so. Truly these teachers and librarians formed a sphere of influence that improved the educational patterns followed by the pupils fortunate enough to come within its orbit.

Faculty members in other areas are working with librarians to develop similar spheres of influence. The spokes of a reading wheel with science at the hub includes: Science in the Home, Science and Safety, Science and Medicine, Science and Industry, Science and Peace, Lives of Great Scientists, Career Opportunities in Science, and Science Fiction. Magazine and journal articles, as well as books, are accepted for outside reading.

Teachers of mathematics are introducing books on great mathematicians so that individuals as well as the subject matter are brought into discussion.

Home economics teachers are presenting special books in their field and acquainting pupils with sources of free and inexpensive instructional materials that will enable them to keep informed on new products and methods for homemaking.

The professional character of the sphere of influence and the resulting excellence of the educational pattern are emerging as factors of as great, if not greater import, than class median limitations and immature pupil whims.

Listening, i.e., aural reading, as a lifetime learning tool, a major factor in reading environment, and making discriminative reactions, is worthy of consideration by all educators, teachers and parents. The proficient listener can make better adjustments to his surroundings, to the sphere of influence in which he lives, than can the untrained listener.

Dr. Donald E. Bird in his article "Are You Listening," which appeared in the OFFICE EXECUTIVE, April, 1955, wrote: "Many of us are poor listeners because we have false impressions of the very nature of the listening process . . . we are poor listeners because all our lives we have assumed certain things to be true about the listening process which study and research have proved to be false. Here are a few of these false ideas:

> "FALSE ASSUMPTION . . . that listening is a passive function. Every scrap of scientific evidence indicates that listening is an active process involving thought and the expenditure of energy."
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> "FALSE ASSUMPTION . . . that listening is easy, that listening just happens when someone within earshot is speaking. On the contrary, listening is difficult both mentally and physically. It requires effort, will-power and mental activity."
>
> "FALSE ASSUMPTION . . . that hearing is listening. That hearing of sounds spoken is but one step in the process of listening. Identification of the sounds as words, recognition of the words, recognition of the thought units respresented by groups of words, association of the thought units with previous knowledge and experience, evaluation of the ideas, and decision concerning possible response are other steps in the process of listening."
>
> "FALSE ASSUMPTION . . . that listening is automatic, a kind of involuntary reflex. Nothing could be more misleading. Listening is voluntary and willful. In a very real sense we hear only what we *want* to hear. Perhaps this is another of our inalienable rights . . .

the right not to listen if we so wish. We might be amazed to know how much of our eloquence is unheard because our listeners have quietly, courteously, but nevertheless firmly exercised their freedom not to listen."

"FALSE ASSUMPTION . . . that listening can be commanded. What a travesty to assume that by saying, 'Listen to me!' or 'Pay attention!' or by using a compelling and directive manner, tone or voice, listening will be ensured. In fact, the opposite effect may be achieved, resistance may be stimulated and the person may choose not to listen."

"FALSE ASSUMPTION . . . that speaking is more important than listening. Thanks to the emphasis placed upon speaking skills in school and business and the general lack of attention to listening skills, this assumption is general. But psychologists on every hand are today emphasizing that sound human relations, whether in the family or in industry, are based upon effective two-way communication."

"FALSE ASSUMPTION . . . that the listening skill develops naturally. There is evidence to prove that adequate development of the listening skill does not occur without training."

"FALSE ASSUMPTION . . . that listening is only a matter of understanding the words used by the speaker. No, it is much more. Words are at best crude symbols for ideas. To understand the ideas of the speaker, the listener tries to figure out the speaker's purpose, to interpret the words in terms of the speaker's background and experience, to consider what has been im-

plied or left unsaid. The listener seeks, in other words, to *understand* what the speaker means."

"Good listening is first of all a matter of attitude toward the speaker. The good listener knows that negative feelings about the speaker and the situation will block and distort his listening. Therefore, he tries hard to develop a real interest in the other person. For only if he wants to understand the speaker, will he listen effectively."

This information relative to the false assumptions about listening was shared with faculty members in several schools where class management was the subject of a series of teacher-meetings.

Attention was also directed to the following types of listening as identified. (1) Passive or Marginal Listening—the kind of listening accorded background music, TV and radio commercials, teachers and parents; (2) Active or Responsive listening—the kind exercised when the listener expects to take action or respond to the message expressed; (3) Appreciative Listening—the kind involved when pleasing music, a play, or story is enjoyed; (4) Analytical Listening, the kind employed for purposes of interpretation and evaluation.

Conditions conducive to listening were described as: (1) a restful, quiet room; (2) clear speech; (3) an appropriate and interesting vocabulary; (4) good timing; (5) the use of visual aids; and more important than any other single factor (6) a reason for listening.

Reasons for listening will, of course, vary with the person and the situation. However, these three general reasons were kept in mind when planning lesson presentations:

(1) need for information; (2) desire for information; and (3) the anticipation of pleasure or possible reward for action based on information received through listening.

Teachers kept a record of class time lost by repeating assignments and explanations in a given period of instruction for the duration of a week. The time lost in many classes equaled a period, or fifty minutes, a week. When computed over a semester the lost time was sixteen periods or more than three weeks. This information was charted and presented to the pupils. To the surprise of the teachers, pupil interest ran high, and a strong nucleus in each class wanted to improve conditions, to prevent lost time and thus gain more instruction.

The nature of listening was studied by the class. It was agreed that the teacher would call the class to order, give the complete assignment once and then repeat it once to enable the pupils to think about it projected against itself, answer pertinent questions and then not refer to the assignment again. Each day as the pupils entered the classroom the teacher selected a listening monitor who relayed the assignment to any tardy pupils. This monitor's name was written in a boxed area on the chalk board so that there was no need to interrupt any member of the class other than the monitor of the day.

Professional teacher time was used to greater advantage than ever before, pupils gained proficiency in using the listening skill, and conduct improved with the resultant concomitant of increased learning in the assigned subject field.

Controlled lessons were carried on to improve listening skills. Short, factual selections were read aloud followed

by immediate unaided recall in the form of written reactions. Selections were read followed by delayed recall exercises with the span of time between reading and response being lengthened each time.

While interest in listening as a skill was still keen the subject of analytical or critical listening was introduced. If one is to make discriminative reactions to his environment he must be able to sift fact from rumor, conjecture and personal opinion. Students and teachers together developed a list of expressions that were considered signals of caution in evaluating oral expression. They agreed that it was wise to listen for such phrases as: "They say," "I think," "I'm told," "I believe," and then to hold mental reservations as to the reliability of the information being related.

Through this unit on listening educational patterns were improved and individuals made more sensitive to the sphere of influence generated by the spoken word.

It is contended by some people responsible for determining the offerings of the schools that time does not permit the inclusion of depth study or enrichment units. Certainly these folk speak from experience and with truth if we must accept the status quo. However, we have reached a moment of decision when we must carefully examine the length of time devoted to schooling and the present content of courses available to children. Changes can be and have been made. In the first semester of the 1957-58 school year in one secondary school, ninety minutes of every school day were allocated to art and music for every child. The second semester saw a change, only forty-five minutes per school day were programmed for art and music, the other half of the ninety minutes was used for extended periods in English and mathematics.

These changes took place after Sputnik. There were no complaints registered by parents and relatively few by pupils. Children tend to live up to expectations and to respect that which is respected by adults with whom they are associated.

Through fear and shock, leaders in our nation have suddenly become outspoken in their concern for more extensive and intensive academic education. Respect has been accorded achievement in science and mathematics. "What a nation honors, it cultivates." The way is open for educators to fight the rising tide of anti-intellectualism. Almost overnight educators who have previously been spheres of influence emphasizing social adjustment, who have been proponents of conformity and mediocrity, are becoming champions of scholarship and individualism.

Fear is always a poor and unwise counselor. It behooves us to think deeply about, and weigh carefully, changes in our professional patterns. We need to liberate the individual from the group, to encourage the individual to be himself. I believe it important for every educator who has consciously or unconsciously championed the age of the common man to reflect upon this excerpt from an article written by Dr. Mary E. Dichman appearing in the May, 1958 issue of the Journal of the American Association of University Women. . . . "Those who choose intellectualism and the intellectual way of life are due at least the same respect as is given to other men and women who follow their businesses or professions with skill, diligence, and integrity. After all, most movements that have changed the course of the world thought have originated with intellectuals pursuing pure reason in their lonely studies or laboratories. . . . Aristotle and the progress of Western philosophy; Copernicus and

Gallileo and the concept of the solar system; John Locke and democracy; Einstein. These men, who have helped shape our world, our nation, and our individual lives, have been intellectuals. Without them and others like them, we would lack most of the satisfactory elements of modern life."

In 1956 I presented before this group the creed of Dean Alfange, which read in part: "I do not choose to be a common man. It is my right to be uncommon if I can . . . It is my heritage to stand erect, proud and unafraid; to think and act for myself, enjoy the benefit of my creation and to face the world boldly and say, this I have done. All this is what it means to be an American."

At that time this creed was considered to be in opposition to the educational philosophy of many and to verge on un-Americanism since the business of education was thought to be that of erasing differences through equal opportunities in education. To stand virtually alone in steadfast conviction that the development of the individual was the chief goal of education was at times difficult when the finger of scorn was leveled, but it was, and is, worth while.

A recent release from the Rockefeller Brothers Fund report says, "The source of a Nation's greatness is the individual and America is in danger of losing sight of that fact . . . the risk is that we will glorify science and forget the scientist; magnify government and ignore the men and women who discharge its functions; pin our hopes on education, business or cultural institutions, and lose sight of the fact that these institutions are no more creative or purposeful than the individuals who endow them with creativity and purpose. . . Society must come to the aid of the individual: finding ways to identify him as a unique person, and

to place him alongside his fellow men in ways which will not inhibit or destroy his personality."

May I trust that your professional lives reflect:
Perception deep enough to recognize that personal adequacy and achievement, not age grouping, bring social adjustment;
Objectivity that permits you to enrich educational patterns beyond personal prejudices or prejudgments that preclude depth study for capable students;

Humility that enables you to show true respect for scholarship; and

Integrity that urges you to set attainable goals for students and hold students accountable for the learning effort necessary to reach those goals.

It is my pleasure in closing to share with you this wisdom from Thomas Carlyle, "All that mankind has done, thought, gained, or been . . . is lying as in magic preservation in the pages of books. They are the chosen possession of men. With the art of writing of which printing is a simple, an inevitable and comparatively insignificant corollary, the true reign of miracles for mankind commenced."

Reading Human Behavior

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BASIC RULES OF REALITY

There must be unequivocal acceptance of these rules for fulfillment of the goals which bring us Peace of Mind, and a Happy and Successful Life, with associated Mental and Physical Health.

1. YOU CANNOT HAVE SOMETHING FOR NOTHING, or by wishing it so. (If wishes were horses, beggars would ride . . .")

2. YOU MUST PAY THE PRICE
   Not Your price, or anything less than THE price. We may pay a tremendous price, but if it is not THE price, our time, effort, and energy are wasted.

3. YOU MUST GIVE UP SOMETHING TO GET SOMETHING. Long term attainment requires giving up short term attainment. (Planning-Foresight Mechanism)

4. "EITHER"—"OR". YOU CANNOT HAVE BOTH. (Unequivocal choice based on "using your intelligence") Wanting, expecting and/or demanding "both" leads to Conflict, Anxiety, Guilt.

5. THERE ARE TWO SIDES TO EVERY REALITY. WE cannot have the "good" without the "bad". We must learn to accept this FACT. Each reality must be accepted in its entirety. "One man's food is another man's poison."

Synonyms for "Good" and "Bad"

my side	vs.	the other side
assets	vs.	liabilities
the part we want	vs.	the parts we do not want
the part we like	vs.	the part we do not like
benefits	vs.	disadvantages
privileges	vs.	responsibilities
constructive	vs.	destructive
opportunity	vs.	difficulty
et cetera	vs.	et cetera

The Whole of any Reality must be considered. You must accept ALL of one reality or ALL of the other reality. The power of choice enables us to select the value on which we are going to focus.

6. LIFE IS A GAMBLE. Nothing ventured, nothing gained. While you are living, you are taking that gamble. Worry, fear, anxiety, etc., are signs of your unwillingness to have it that way.
7. "AS YOU SOW, SO SHALL YOU REAP." The situations you have now are "normal" in relation to what you have "planted".

You must be "willing" to have all these "laws" or RULES OF REALITY in operation. Willing or not, these RULES ARE OPERATING. Your "unwillingness" does not alter the reality of them and their operation. It only causes self-destruction, and perpetuation of the aggravation. The illusion that these RULES do not apply to YOU makes the bearing of their operation extremely difficult and frustrating. Repeated "EXPECTATION" in violation of these rules is "FANTASY" and leads to "REPEATED FAILURE"—DISILLUSIONMENT, etc., with eventual shattering of your "faith" on many levels.

FRUSTRATION - ANXIETY - LOSS OF SELF RESPECT, ETC. ➔ DESTRUCTION

THE POWER OF REASONING AND CHOICE

The power of reasoning and "choice", if used intelligently, gives us a tremendous advantage over every other living thing; but only if we learn how to use it. It is a handicap to have it and not to use it properly. Our intelligence is intended to be used as an instrument of self preservation and self perpetuation of mind and body. It is so superior to the less effective means which are supplied to the lower creatures, that some of the less effective means are omitted in our creation. With these less effective means omitted, unless we use our "intelligence" we are extremely vulnerable to destruction. Use of "emotions" without intelligence and "choice" is destructive of "Ego", personal integrity, self respect, self esteem, peace of mind, success, happiness, mental and physical health.

In much the same way that a child would be hurt by violations of the fundamental laws pertaining to the use of electricity, violation of the basic RULES OF REALITY pertaining to human behavior produces similar destruction.

Sooner or later a child should find out that the RULES of REALITY do apply to him. When conditioning factors in his environment are such that he cannot learn from experience or teaching, the child may destroy himself (total "frustration") trying to use his illusions to get his own way. His intelligence is never permitted to function due to the automatic "protective defense" reactions association with unwillingness to accept Reality as it is. Instinct and emotion predominate. As a child, he may be successful in violating the RULES OF REALITY 90 per cent of the time. But with complete focus on a fantasy created, unrealistic, the 90 per cent is lost, and his attention is centered on the

10 per cent failure. Repeated failure shatters self confidence and creates feelings of "inadequacy" and a weak Ego.

Prolonged parental intolerance to the child's unacceptable behavior at a level less than unrealistic expectation, undermines the child's self confidence and further establishes attitudes of "guilt", "rejection", and "inadequacy" with further need of a wall of "protective-defense" to bolster his "Ego". This wall comes up automatically and closes out further harm to his Ego, but at the same time closes out progress and development of emotional maturity.

Parents are likely to take the child's acceptable behavior for granted. Focus on the unacceptable behavior occurs with varying degrees of intolerance. "Repression" and "inhibition" reactions are soon learned by the child in order to avoid the "consequences", and to "preserve" the appearance of "approval". His inadequacies are repeatedly brought to his attention and become indelibly stamped in his subconscious. Repression of instinctive drives without understanding and tolerance can produce serious maladjustment. It creates an excessive "need for approval" and low self esteem with associated factors which lead to the so-called Inferiority Complex. As surely as a child needs proper food to provide healthy physical growth and development, he needs "approval" (acceptance "as he is" at that patricular moment) (unselfish love) for healthy emotional growth and development.

When parents are operating their own lives without using the PRINCIPLES OF THE USE OF INTELLIGENCE, THE PRINCIPLES OF WILLINGNESS, THE PRINCIPLES OF ADAPTATION or THE PRINCIPLES OF UNSELFISH LOVE, the child acquires these same patterns of reactions for dealing with his life situations. This

is unconscious learning, comparable to learning his home language. The child is reduced to governing his life to a great extent on Hedonistic "pleasure-pain" principles without any environmental influence to help him to learn USE OF INTELLIGENCE. Emotional immaturity is a natural consequence of this situation.

The degree to which we continue to use the "unwillingness" reactions gives us a definite way of measuring the USE OF INTELLIGENCE, or so-called emotional maturity. The harmful, destructive effect of unwillingness is always in addition to the reality—inefficiency 100 per cent. We do not have a "choice" in regard to Reality. Our only "choice" is whether we are "willing" or "unwilling" to have it that way.

I REPEAT FOR EMPHASIS: When a sufficient degree of any or all of the manifestations of "unwillingness" exists, INTELLIGENCE ceases to function. "Feelings" dominate, learning from experience and/or teaching is obliterated, and the precipitating problem (situation) is perpetuated and increased. When FEARS motivate action, unwillingness is certain, CONFLICT occurs, and ANXIETY is established.

When our intelligence is not functioning, we feel, think and act on an instinctive emotional level. In so doing, we lose the advantage which is bestowed only on human beings . . . THE POWER OF REASONING AND "CHOICE".

The unwilling response of parents to the infant's earliest demands is the beginning of the attitudes which lead to maladjustment. (The infant can sense "unwillingness" in his parents when they are "walking the floor" with him, etc.)

Grandma can usually put him to sleep in a few minutes. — Why?

HALLUCINATED OMNIPOTENCE*

The false sense of "power" which is established in relation to parents' over indulgence, over permissiveness, over protection and over expectation further sets unrealistic expectation in the child.

When parents say "No", and then change the "no" to a begrudging "yes" because of the child's unhappiness or withdrawal of approval of the parent, the foundations of the power of the child over the parent is further strengthened. With continued use, this power enables the child to "get out of" what he dislikes, and to "get" what he "likes". Instinctively this comes most naturally. Since he "gets" or "gets out of" his life situations through the use of the power, his accomplishment is achieved with disapproving, unwilling attitudes from his parents. The child does not have to make an intelligence 'CHOICE". Emotions make the "CHOICE" for him. He can have the benefit of using this power to have the short term satisfaction (to bolster his Ego) at the expense of sacrificing the long term benefits of establishing a strong "Ego". He cannot have BOTH. He is made to "feel guilty", "feel inadequate", and "feel unworthy of love". Thus, the framework is established for extensive varying degrees of maladjustment. The child's self respect and respect for his parents suffers. In addition, expectation which is unrealistic is established. Satisfaction of "self interest" is accomplished at the sacrifice of satisfaction of "need for approval".

A child who finds himself with such power has responsibilities far beyond his ability. He is truly inadequate

at this time. He is enabled to direct life situations where he does not feel assured that he is competent. Continued satisfaction of his instinctive "self indulgence" drives, demands that he continue to use this power. (Ego demand for recognition of his importance.) His strong, imperative, instinctive "need for approval" cannot be satisfied at the same time his "weak Ego" demands constant short term evidence of recognition of his importance. He CANNOT HAVE BOTH. (The short term benefits and the long term satisfaction.) The ensuing CONFLICT is not adequately resolved. This conflict is the foundation of "frustration", "anxiety" and "guilt" in adult life. The degree of unwillingness attitudes shown by parents creates in the child feelings of guilt and rejection with associated dependence. Guilt because he is selfish and subconsciously has been made to "feel" that it is wrong. Rejection because he cannot measure up to the standard set by parents. Dependence because of his "feelings of inadequacy" and because his methods fail to work elsewhere. Unrealistic expectations based upon Fantasy lead to repeated failure. Repeated failures undermine self confidence and produce "inadequacy feelings". Eventually, his methods fail to work with his parents. At this point, feelings of disillusionment, frustration, conflict, anxiety and guilt may become intense.

In the same way that a child learns his "home language", he learns everything else in his environment. At no place in his environment are educational facilities available for him to learn the (1) PRINCIPLES OF USE OF INTELLIGENCE, (2) PRINCIPLES OF ADAPTATION, (3) PRINCIPLES OF WILLINGNESS, and (4) PRINCIPLES OF UNSELFISH LOVE. The unwillingness of his parents to abide by the RULES OF REALITY, as manifested by

their scolding, anger, etc., etc., becomes his way of life. Thus, perpetuation of the child's EMOTIONAL IMMATURITY is fostered and produced. The child must of necessity operate his life on instinctive emotional levels. Instinct and emotion are very unreliable guides to bring happy, successful, adjusted lives. The handicap of Fantasy (magic cloak) Creation as a basis for expectation becomes increasingly handicapping as a child chronologically progresses away from childhood.

The varying degrees of the parents' "unwillingness" to govern unequivocally their lives by the RULES OF GOD, the RULES OF THE UNIVERSE and the RULES OF REALITY leads directly to the varying degrees of emotional maladjustment and functional mental illness which is produced in the child.

Until Society provides an adequate educational means for establishing the PRINCIPLES of the "use of intelligence", "adaptation", "willingness" and "unselfish love", there is small hope for breaking the continuous perpetuation from generation to generation of these problems which produce such a toll in stress and money. The degree of emotional maturity which was adequate for dealing with life situations prior to now is no longer adequate. The complexities of modern society require greater degrees of emotional maturity. (Use of intelligence.) Similarly, a financial income which was adequate in 1910 is not adequate in 1958.

It is my hope that such an EDUCATIONAL PROGRAM can be instituted now. It can be a beginning, and when the ingenuity of capable men and women throughout the world is directed at these problems, progress and attainment will go apace.

The purpose now is to create awareness of the possibility of an objective solution. Once the causes of functional mental sickness and other manifestations of lack of "use of intelligence", "willingness", "adaptation" and "unselfish love" are understood and accepted, the EDUCATIONAL PROGRAM will be refined for dissemination through all possible media.

For the time being, "LEARNING THE USE OF INTELLIGENCE", etc., is an individual problem. Until an EDUCATIONAL PROGRAM is available, LEARNING THE USE OF INTELLIGENCE is entirely a coincidence. The conflict between instinctive emotions and intelligence which produces FRUSTRATION, CONFLICT, ANXIETY AND GUILT can be resolved through an adequate EDUCATIONAL PROGRAM.

For your own sake and the sake of your children, begin this very minute to TAKE THE RESPONSIBILITY of bringing these important factors into your life. Your reward will be a happy, successful life with associated physical and mental health for yourself and for your children.

Reading Personalities Through Handwriting Analysis

E. C. F. Cole, *Professional Handwriting Analyst*

"Know Thyself" is the advice and command of the wise down through the ages. Handwriting Analysis is one sure way to "know thyself" as well as to know others. Handwriting Analysis is not new; in fact an early handwriting analyst was the 2nd Century Roman historian, Suetonius, who observed that Augustus Caesar's stinginess could be plainly read in his tight script. Chinese philosophers speculated on calligraphy and its relation to character.

Modern graphology began with a treatise on the subject in 1622 by the Bolognese physician, Camillo Baldi. Throughout the next 200 years artists, novelists, poets and physicians sought clues to personality in penmanship. Countering their "intuitive" approach was the French school of Abbe Michon and Crepieux-Jamin who related "isolated signs" to specific traits.

Attention in the late 19th century focussed on the psychologic study of handwriting as one of several "expressive movements" comparable with speech, gait, and facial expression. The psychologic and physiologic studies of the graphomotor process itself were also investigated.

Analytic-minded graphologists separated handwriting into its component elements, interpreted each as having a specific meaning. The more modern integrative approach bases interpretation not on isolated elements but on patterns. Another approach interprets handwriting forms as symbolic in accord with psychoanalytic theories.

The established uses of handwriting analysis today include identification, authentication, e.g., as in law, criminology, historical research, vocational guidance, marriage and other counseling, personnel selection, credit risk investigation, to some extent allied with other projective tests in clinical psychology. Comparative studies over the past twenty-five years indicate that graphologic analyses have a markedly higher validity than Rorschach and other projective tests. Some clinical psychologists point out that handwriting analysis is the earliest of the projective tests, and that all such tests depend largely upon the skill of the analyst.

Modern graphology researchers and analysts are often trained in psychologic disciplines. They approach handwriting as a highly refined revealing psychomotor activity. The individuality of handwriting is such that the chances of two persons having an identical script are calculated at one in 68 trillion. The handwriting of blood relations, even identical twins, may show little or no resemblance. Education, nationality, age, all influence handwriting, but not to the extent of masking individual differences. A writer's sex cannot be determined from handwriting, although personality traits popularly termed "masculine" or "feminine" (aggressiveness, passivity), can be fairly accurately recognized.

Graphologic methods today make use of microscopic examination, macrophotography, and a special instrument, the graphodyne, which measures pressure, tension and speed.

Early efforts at graphodiagnosis of physical or mental illness were made in the fields of cardiac, gastrointestinal and liver diseases, cancer, tuberculosis, accident proneness and nearly all psychiatric categories. Graphodiagnosis is based on the hypothesis that not only characterologic and cogni-

tive factors of an individual but also physical and emotional disturbances are recorded in handwriting, possibly long in advance of clinical symptoms.

Perhaps one of the most discouraging aspects of the modern handwriting analysts is the brick wall of skepticism and closed-mindedness shown by many supposedly educated people. Regardless of how convincing the demonstration or how accurate the analysis, one is often confronted with, "What scientific proof have you to back up Handwriting Analysis?"

However, these same people will go into a drug store to buy a box of pills they see advertised on T-V and take them without even looking at the list of ingredients to see if they are allergic to any of it. They will touch their hand to a hot stove or cigarette and immediately jerk it away without demanding proof that human flesh will burn if left in contact with objects above a certain temperature.

Graphology is a science, recognized for over 150 years, and yet we want proof that it will work. If you have taken any psychology courses and have not been introduced to handwriting analysis you have been gypped.

The following quotations from recent scientific literature illustrate current opinions regarding the uses and validity of graphologic reading:

> *Psychiatric Quarterly* 25:616. Jl 1950. This reviewer must agree with Dr. Sonnemann that graphology, the study of handwriting, is an important psychodiagnostic method that is insufficiently used in America at present. When the psychiatrist realizes that handwriting, according to experts, is as characteristic of the individual as the nose on one's face, and that after the original

school training period is over, the handwriting becomes an expression of the individual, as characteristic as his speech and actions, he will give the analysis of handwriting its proper niche in projective methods.

L. E. Shaffer, *J. Consult. Psychol.* 14:236. Je 1950. Why has graphology so long remained a rejected stepchild of psychology in America, while receiving more recognition in Europe?

N. Thornton. *J. Crim. Law & Criminology* 41:251. Jl 1950—nearly any intelligent person who reads the book in a sober and unprejudiced frame of mind is certain to gain a clearer conception of the value which handwriting analysis may prove itself to have in the study and assessment of personality dynamics.

J. Am. Med. Assn. 144:505 1950. There seems little doubt that handwriting analysis, properly conducted, can hold a place along with other more formalized projective techniques as an adjunct in personality diagnosis.

Reviews in Fourth Mental Measurements Yearbook. 1953. p. 1042. Book Rev. No. 355. From Foreword. Operating as a whole, graphology can take its place as a full equal in personality diagnosis with other projective techniques, e.g., the Rorschach test, that have stood the test of time.

From "Psychodiagnostic Value of Handwriting Analysis," by W. R. Perl, *Am. J. Psychiatry* 3:595. Feb. 1955: "The question of the individuality of handwriting was experimentally investigated and statistically confirmed, but for a long time prior to these statistical studies, its existence was common knowledge, and one of those facts which just work. Handwriting is self recorded

behavior in a structured situation. Handwriting is crystallized gesture.

"Handwriting analysis as a situation test has the advantage over other such tests in that the behavior is not only self recorded but, in addition, is a test of behavior in numerous situations. Handwriting by far exceeds the possibilities of both situation tests and a projective technique. Handwriting is the result of a brain wave.

"Handwriting analysis is rooted in the essential self consistency of human behavior and more specifically in the fact that handwriting is a product and, at the same time, a record of highly individualized motions. The rationale is further based on the existence of a correlation between our motions and our emotions."

According to Bell (1948) graphology has found a rationale for its existence in this country. Within the field of personality diagnosis it is now recognized and accepted as a projective technique. The studies of Allport and Vernon in 1933 marked a turning point from the hypercritical rejection of graphology by American psychology. Much of the early mistrust of the use of handwriting in personality diagnosis was based upon misunderstanding and the discredit brought to the field by "popular" graphologists.

Allport and Vernon (1933) state that very few psychologists in this country have studied the methods or claims of handwriting analysis seriously. Nearly all American critics have leaned heavily upon the single experiment of Hull and Montgomery which gave a low correlation and has been considered critical, but which in fact proceeds from a conception of graphology which is remarkably naive and largely irrelevant. In contrast we find an alert and sympathetic

interest in Europe. The deficiencies of the methods of Hull and Montgomery are so patent that one is neither surprised nor convinced by the negative results. The study bears virtually no relation to the methods employed in graphological practice nor to any of the current theories of the relation between handwriting as a whole and personality as a whole.

The fact has been overlooked that psychological tests themselves, such as the Allport-Vernon Test, measure some things extremely variable, which may or may not be an expression of personality. They have attempted to rate individual characteristic signs and overlooked the interrelatedness of such signs. Psychologists and psychiatrists, with little or no knowledge of graphology, have matched the character sketches of the patients as written by the graphologists with the handwriting.

The Rorschach test, ink blot test, probably the most used by psychologists, has been criticised as disregarding scientific method and the use of a sort of magic to gain the results reported. It is generally regarded, by those who use it, as a method which still needs much development and must, even in its present state, be used with caution as well as with enthusiasm.

It is clearly unreasonable for psychologists to take fright at the very mention of research in graphology. Indeed, with the exception of a few quixotic experiments, conceived by psychologists bent on rescuing the public from somewhat imaginary ogre, most of the researches reported have yielded promising results according to Allport and Vernon. The psychology of handwriting has no special interest in the diagnostic use of handwriting.

Munroe (1945) presents the careful analysis using the

Rorschach test, graphological analysis, and the Art method, in comparison with periodical teacher reports of college students using eleven subjects. Matching experiments and comparison of ratings offered conclusive evidence of an agreement of these methods. All methods appeared to yield results in substantial agreement. The agreement on essential dynamics would seem to offer good evidence of validity. There were few or no discrepancies between the three projective techniques and the teacher observations.

Rose Wolfson, as reported in Anderson and Anderson (1951), believes that the special merit of handwriting analysis among tests of expressive movement is its comparatively easy availability, its more permanent type of record for development study, and its comparative freedom from the possibility of falsification, conscious or otherwise. Its special ability as a test is to record individual behavior patterns. To the graphologist, these are indicated by the interrelationships, balances and imbalances among graphic elements and dimensions.

A well-known practicing psychiatrist of San Francisco, Blanche M. Baker, M.D., Ph.D., says:

"In recent years handwriting analysis has left the realm of the mystic arts and has grown in favor with psychiatrists as a diagnostic tool, a 'quickie' Rorschach, as it were, for the unconscious seems to shape the trail of ink we leave on paper in spite of copybook training and conscious control."

Of doodles, she adds: "They seem to have much to offer, for it is actually Rorschach in reverse. These doodles are an objective pictorial production made by the hands guided by the unconscious while the conscious mind is focused elsewhere. At any rate the idea that even our zaniest

scribbling may have meaning, is just one more step in our awareness that this is an orderly universe after all."

THE MECHANICS OF MODERN HANDWRITING ANALYSIS

Handwriting is Movement: Handwriting, in the analyst's eyes, is not form but movement which has been fixed by ink or pencil on the paper. By retracing the forms, one recreates the original movement, as the groove on a record reproduces the original sound. This movement is directed by the shape of the letter. It also carries the writer's own dynamics, his own innate and highly individual rhythm. Thus the hasty, excitable individual uses—whether in life or in writing—movements which differ from movements used by the calm, slow person. The dreamer will dawdle, whereas the realist will see to it that his work is as much adjusted to reality as possible.

Millions of variations are possible in the characters of the alphabet—variations in height, width, pressure, etc., which the analyst has to interpret. Often the deviations from the original penmanship model of the alphabet are only minute, but they still reflect the writer's personality and are, therefore, revealing.

The analyst not only wants to know whether the writer is, for instance, excitable or calm, magnanimous or stingy; he will also have to find out why that is so. In other words, he is looking for the cause of the overt action.

As a mother can tell from the sound of her child's crying whether it is caused by fear, spite, or pain, the analyst distinguishes between the innermost conflicts, the drives and motives of the writer just by observing deviations from school copy.

3-Dimensional Space: Here is what happens when we write:

The writing hand moves from left to right and up and down. In addition, it moves through the air when the "t" is crossed or the "i" is dotted. This complex "movement in space" is, from the earliest writing lesson, unconsciously charged with a symbolism of space and time which is similar to the language of dreams and closely related to the most primitive sign language.

For example: we write from left to right. Then, doubtless, "left" is the beginning. The subconscious mind attaches quite a few meanings to this "beginning," such as the past, the start, the intention, the origin, even the mother. And as the writer marches on his way toward his aim (the end, the fulfillment, i.e., the right side of the writing sheet) he may, in looking backward, consider the beginning as that which he has left.

Space and Direction: The writer's attitude toward the past can also differ according to whether he rushes away from it, or lingers there with superfluous flourishes or superficial embellishments—which, by the way, may also be indicative of his taste, or the clarity of his thinking. He may also reverse movements that should be directed forward. The interpretation depends on whether these movements are excuted in the upper or the lower letter extensions, in well-rounded or angular movements, in the air or deeply impressed into the paper; whether they appear in the middle or the upper zone, or in all parts of the handwriting.

From early childhood every letter form is thus charged with all kinds of emotions and motivations. It is not only the child's individual physical rhythm which is projected

on the letter forms, but also his likes and dislikes, his expressions of love or resentment, or whatever emotion might have moved him when he put his pen or pencil to the paper.

Mind and Body in Handwriting: A child's physical rhythm may induce him to make the upper extensions much longer than the lower ones. His mind, too, takes part in this distortion: subconsciously, he likes the upper extensions to be dominant because he wants to reach out for the "high," the ideal, the idealistic. If such a child is forced to follow school form strictly, something is likely to give way inside him, or he may conform for a time and then fall back into his own pattern.

It requires psychological knowledge to find the reasons for the child's endeavor to "reach high". Was it the fear of the "low"? Was it a gratifying experience with authority? Did he find that dreaming and thinking were good substitutes for actions that he did not want to perform? Once we recognize the general motivation behind the "reaching out," a clearer definition of its specific meaning for the writer can be determined through other details of the handwriting.

Taking the school model of the alphabet as a yardstick, the analyst can recognize both harmonious and discordant traits: when in a full and round handwriting the letter "n" is written in an angular manner, the harmony in the writer may also be disturbed. Or, if in a "normal" handwriting the movements in the lower zone look somehow distorted, they reflect a contradiction in the writer's make-up.

The Symbolism of Space: In addition to the observation of individual writing movements, the analyst—or the

analyst-in-training—must become acquainted with the "language of space symbolism".

Consider only what connotations the word "below" has in all the languages of the world. Our first thoughts might be of the underworld, hell, the grave, the ground, the basis on which everything is built, the firm fundament, the symbol of fertility. The word "below" may also be symbolically connected with "soil" and "dirt," which can have many special meanings. The words "low," "ground," and "legs" are closely connected, and it is not accidental that many fast skiers write lower extensions that are frequently six to eight times longer than the letters in the middle zone.

Thus, every detail of every letter has its meaning for the individual personality and must be studied and observed. The aim: *to find a way to the core of the personality and its driving forces.*

The question each of you now has is "How does this affect me?" "What value can I realize from Handwriting Analysis?"

As an individual, if you are sure you understand yourself, know why you react to the situations of life as you do, are sure you are in the type of job you are best suited for to be happy as well as productive, never have any trouble understanding other people, can accurately judge the people you deal with, without a trial and error method or long-term evaluation, you don't need handwriting analysis. If, however, you are troubled by any of these handwriting analysis may prove to be helpful to you.

American industry reports one of its greatest losses comes from hiring people for the wrong job human relation wise. Statistics show 9 out of every 10 persons laid off or

fired lose their jobs not from lack of knowledge or skill but for poor human relations. This is costing industry millions each year.

Our colleges are jammed with people taking courses they will never be happy putting to practical use. Our high school counseling system lacks much in its methods of guiding our youth. I will grant you we do not allot enough time and money to this important phase of our national problem. I will also tell you I have received some of the most asinine replies from educators when I suggested even a trial at handwriting analysis. Education appears to be much less cooperative than does business or industry.

A high school junior told me he wanted to be a doctor. Would I tell him if his handwriting indicated he would be a success and happy as a doctor?

His writing told me no, unless he wanted to suffer with each patient as he had a very sympathetic and deep expressive emotional personality. He had the mental capacity and other traits needed by a good doctor. Although he did not agree, he did accept my suggestion and took a summer job in a local rest home so he could be around sick people. After three weeks he quit. He could not stand the suffering he saw only at a distance and one death was one too many. Today he is a successful salesman of life insurance. He could have wasted several years on a medical education.

One industrial plant in Greater Santa Clara Valley increased their force of machinists; it was necessary they add a foreman. For this position they picked their best lathe operator. This man had an outstanding record for production and quality of work. He knew what the company expected, was loyal and never missed a day's work. He accepted

the job, fell flat on his face as a foreman. He could not get along teaching and supervising others—poor human relations.

After a few weeks the company had no choice but to let him go or lose half their force. Due to personal pride he would not go back to his lathe. The company lost their top mechanic and the mechanic lost a good job, all due to poor human relations.

I was called in and picked from handwriting specimens a man for the foreman job. Today he is superintendent of the plant, well liked by both the men and the company. He would have never made a top-notch lathe operator. But he did have good human relations and a working knowledge of the trade.

A couple called for an interview. Their marriage seemed doomed to fail. They had talked to a marriage counselor and their priest. There was no alcohol or infidelity problem. They just didn't get along. Their writing showed the man to be very emotional with deep and lasting feelings, over sensitive and underestimation of self. The woman ruled by her head with a short emotional memory, a fine sense of humor, a tease at heart. No wonder they had trouble, these were basic traits. I explained the reason for their conflicts; for the first time they realized they never really knew each other before. With this new understanding of each other they soon learned to make allowances for each other and are now very happy, thanks to handwriting analysis.

No, they did not change, they only learned how to understand why each reacted as he did to various situations.

A minister was having trouble with one of his board. He brought a specimen of the man's writing in. After telling him the basic character of the man and how he could handle

him for the benefit of everyone, the trouble was changed to close cooperation. The board member was not letting his real personality show but was acting for effect. He still acts for effect but now the minister knows how to handle him for best results.

The reading of character and personality from handwriting is a science each of you should take advantage of. Have a good analyst make you a personal report so you will understand YOU and you will be better able to understand others.

May the strokes of your pen and the strokes of pens of those you live and work with show each of you a clearer view into your personalities and characters, thus making it easier for you to carry out the command of Him who said, "Love thy neighbor as thyself".

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What About Seeing For Reading in a Scientific Age?

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The average student will have studied about 400 books by the time he graduates from high school. To do so, his eyes must travel 500 miles of printed page, making some 25,000,000 stops along the way to grasp the meaning.

Besides this amazing total, he will read many books just for the fun of it, if he is a normal youngster. Reading output may be enough to fill fifty feet of bookshelves, even in these days of TV. For study and fun, he'll look at some newspapers and magazines too. The reading load in college will double or triple, depending upon the particular curriculum.

Every pair of young eyes has a vital role to play in learning about the world around them and contributing to the individual's pleasure as well. And it is highly possible that students, parents, or even teachers have given little thought to whether or not those eyes have the visual skills so necessary for reading and learning.

Learning does involve a great deal more than vision for reading alone. Classroom study requires all kinds of close work: painting, drawing, experimenting, inspecting, etc. Even distance vision will be kept busy at the blackboard, in the laboratory and lecture hall viewing a wide variety of visual aids, movies, slides, etc.; to say nothing of trips afield exploring a myriad of nature's wonders.

This adds up to a tremendous seeing task which faces every child. His learning, his knowledge depend intimately

upon how well the job is done. And all this by the very easy standards of the average student, no matter how "average" may be defined.

Now consider the demands upon the eyes of a top-grade student, one destined to be the atomic scientist or the pilot of a round-the-moon rocket of tomorrow. Visual demands may be ten-fold what we expect today. It may even require a different kind of reading and seeing than we generally use in 1958.

We know that easy reading can be done by scanning, leaving out a line here and there, going at top-speed. But such reading is seldom possible for the scientist; he must read for detail and accuracy, indeed it may be slow and repetitive. The burden upon eyesight is greater because of the time and accuracy involved. The premium in a geophysical age is on accuracy, not speed of eye movements for study. Eyes trained for fast reading may get ahead of minds absorbing a new theory of space travel.

On the other hand, the space pilot needs the fastest seeing he can get. Even at today's speed, two jets coming at each other often can't be turned in time to avoid a crash, by the time the pilots see each other. Tomorrow the speed of air travel may be ten-fold. But it takes far different seeing skills for the pilot to learn all he must know of aerodynamics, navigation, mathematics, physics, etc. He has to see accurately, even slowly in some degrees to learn about flying, but once in the air, vision is barely fast enough in modern aviation.

Seeing for reading becomes even more important in a geophysical age after the scientist leaves the classroom. Ahead lie many years of work and study, all of which depends upon

eyesight in large degree. The outcome hinges upon visual skills learned in the beginning years of study—*and here is where the reading teacher plays a most significant part.*

Whatever seeing skill a child must have in the years of his adult life—the rapid eye movements for casual, hi-speed reading; the precise, slower reading fixations for technical material; the keen vision of a jet pilot; or the tireless eyes of the industrialist and researcher—he needs the most perfect visual mechanism it is possible for him to have. Only then can minds be best trained to advance the frontiers of science.

With greater emphasis upon science and education, it is now more important than ever before to find quickly the child whose eyes are not up to the job. *This cannot be done without the teacher's help.* She stands at the battlefront when young eyes meet their most severe seeing demands. Here, watching the child's visual performance under many conditions of study and play, she can gain information not obtainable in any other way.

"The observant teacher, along with her records of the child's performance, is more reliable than the results of any vision screening test," states Dr. Lois Bing, children's vision expert of the American Optometric Association.

Leave it up to the school vision test? Few school vision screening tests are complete enough, nor frequent enough, to relieve teachers of their responsibility for detecting the child whose vision can't meet schoolwork demands. This is not being critical of the tests, it is simply inherent in their nature that nothing short of a complete visual analysis of every child is a "perfect" test. Most school vision programs rely heavily upon the teacher; they are designed to utilize her position and experience as a trained observer.

But the teacher must know what to look for. She should know the ABC's of children's vision—the fundamental clues which always reveal the child with a visual problem:

A stands for the *appearance* of the child's eye's when they do not see properly.
B stands for his *behavior* which so often is the warning sign.
C stands for the *complaint* he sometimes makes when vision doesn't do the job.

APPEARANCE

Easily seen, but sometimes ignored, is the outward sign of trouble, like red and irritated looking eyes. A youngster's eyes should appear clear and healthy.

Frequent sties, red and swollen eyelids, and inflamed eyes, though caused by low-grade infection, may have an underlying basis of eyestrain. Persistent redness and watering, particularly following intense use of eyes, may be an indication of inadequate vision. Parents should be notified whenever their child's eyes appear "strained" or "irritated".

Eyes which "look crossed" or "turn out" even though only part of the time, are acting abnormally in a child of school age. Both eyes should constantly work together, aim smoothly and accurately from the first day of school. Immediate action is necessary in every case of faulty eye-muscle activity, and this condition should never be ignored.

BEHAVIOR

Behavior can be the most significant warning sign of poor visual performance. Not alone the cause of misbehavior, vision is but one of the potent factors. A demand for intense seeing—particularly close work—can produce

a variety of symptoms which suggest a visual background. The teacher is right on hand to see it happen.

Restlessness and irritability may occur if pressure is put on to perform what, for the child, is a difficult visual task. Avoiding the use of the eyes for study, accompanied by a variety of excuses which every teacher knows, or misbehavior to divert attention elsewhere are common results.

Failure to learn at the expected achievement level, especially poor reading, if not accountable in any other way, may itself be an indication of inadequate vision. The precise, statistical relationship between "vision" and schoolwork has not been easy to determine. But there can be no doubt there is a relationship! Every teacher has seen cases of school failure solved by the correction of a visual problem. Moderate degrees of visual difficulty may not produce such a drastic result but may nevertheless retard a youngster's normal performance.

Reading habits are indicative in many cases, including some of the less severe visual problems. Holding the book too close to the face, frequent blinking, closing one eye, tilting the head, poor posture, rubbing the eyes, and easily losing the place are particularly significant. The clever teacher can learn to watch the child's eye movements when reading and with experience evaluate good and bad performance.

Behavior outside the classroom may be the tip-off to young eyes not seeing as they should. Playground action, freeplay period, and social activities may be a source of information about eyesight. Frequent tripping or stumbling, poor hand and eye coordination in playing ball or in picking up things, temper tantrums, and even unsociability can have a visual basis.

Complaints

Complaints of youngsters about their eyes are always significant, excluding any psychological factors. Very young children are less likely to complain and have symptoms of eye discomfort than are older ones. They may simply avoid the use of eyes if they hurt. The "I don't like to read" attitude develops. Their symptoms of pain are often nebulous and misunderstood. But the poor reading, or lack of interest in it, is a significant symptom itself.

As interest in learning develops and the pressure of school increases, the youngster will persist in use of his vision and complaints become more frequent and important. A healthy, normal pair of eyes should be able to perform beyond the demands of ordinary schoolwork without fatigue or symptoms of discomfort.

Complaints of headaches, dizziness, blurred vision, seeing objects double, itching or burning of the eyes, and discomfort of any kind associated with use of the eyes are abnormal in children of school age. Car sickness, nausea, and nervousness may be related to incorrect visual responses.

The teacher must learn these ABC's of visual difficulty thoroughly, and she must take an aggressive attitude about informing parents when she discovers them—if schools are going to demand more and more of eyesight. But her role doesn't stop there, she can contribute a great deal more to helping the child who needs visual care.

The information the teacher has about the youngster is a most important part of the case history. The decision on how to handle the child's visual problem may very well depend upon it. The professional man may request the information on a special form provided for that purpose, or

he may even want to talk to the teacher. Too often this exchange of information has been lacking—either not asked for, or sometimes not supplied.

The teacher should then be informed about the child's visual problem, at least in common terms, by the vision specialist. She is entitled to a report of the visual analysis; standard forms for this purpose are now in widsperead use.

With knowledge of the child's visual problem and how it is being solved, the teacher is in a position to help out a great deal. Her part may be as simple as being sure that glasses are worn properly, or she may need to give specialized or limited study assignments in some cases. The follow-through and after-care program for many children requires teacher, as well as parent, cooperation.

Civilization has lifted the burden from man's back and placed it on his eyes, it has been said. The geophysical age will certainly intensify that burden.

Since this is true, then detecting and correcting children's visual problems cannot be left to chance. The teacher must assume an increasingly important role: 1. She must learn the ABC's of children's vision and help parents and the school vision tests detect the child who needs care. 2. Her observation and records should be available to add to the youngster's complete case history and help guide the professional man in solving the problem. 3. The child who wears glasses, or has visual training, may also need her help, her supervision and guidance for better seeing. In these many ways the teacher must come to play an important part in seeing for reading in a scientific age.

Aural Interpretation: A Basic Approach to Reading for the Deaf Child

ETHEL L. DRAKE

Language is a poor thing. You fill your lungs with wind and shake a little slit in your throat, and make mouths, and that shakes the air: and the air shakes a pair of little drums in my head — a very complicated arrangement, with lots of bones behind — and my brain seizes your meaning in the rough. What a roundabout way, and what a waste of time!

GEORGE DU MAURIER
Peter Ibbetson

In this geophysical year, we have all been made conscious of the wonders being wrought by the hand of man. We know of the long periods of preliminary work and training, of the detailed preparations necessary to a successful venture. We have been impressed by man's creativity in science. His adventures into space have thrilled us.

Not all of us may participate in these activities, but all of us do participate in the greatest adventure of all, the adventure of life itself. Mr. Kettlewell,[1] of the Royal School for the Deaf, has observed that if it is important that man be so carefully trained and equipped for the adventures which he devises. Then, how much more important it is to ensure training and equipment for the adventure of life. And we realize that to no one is it more essential that suitable and adequate training be given than to the deaf child. "The equipment which he requires has to be built up from nothing, whereas we who are fortunate enough to hear have merely to add a little to that which nature has enabled us to acquire."[2]

A hearing child of five years old is already a socialized individual. He has the important equipment of language and speech. With this equipment he has been able to make use of the nervous systems of others in his group; he is not dependent wholly on his own experience for information about himself and his environment. He is not limited by his own experiences and knowledge; he does not have to discover the truths of life by trial and error. He can develop himself, and be developed, by knowledge already stored by others and transmitted to him by aural means. Language makes this progress possible. The hearing child can take flight in any direction, even into outer space, while the deaf child is still confined to the ground.

The child with a severe aural handicap is deprived of the natural socialization afforded every hearing child. As Robert West has said, "Socially, they are *in* this world but not *of* it".[3] The deaf child is hampered in his mental, social and educational development because he does not hear. It has been stated before, and can bear restatement, that there is no disablement which has such a marked effect on the upbringing and development of a child as the handicap of deafness. The deaf child does not speak because he cannot hear. His efforts at speech are imperfect, or he does not speak at all because he does not hear the patterns of speech used in his culture. Since he does not hear speech, he does not know or understand language. And it must not be forgotten that spoken language is the fundamental factor in our life and education.

Helen Keller has said, most poetically, that "Children who hear acquire language without any particular effort; the words that fall from other's lips they catch on the wing, as it were, delightedly, while the deaf child must trap them

by a slow and often painful process". She might, more realistically, have said that the teacher of the deaf child, whether in the home or in the classroom, must first bait the trap, set it, call it to the attention of the child, and then help him to interpret and use that which has been done and seen. Interpret it so meaningfully that the child fully and creatively experiences and understands the concept and the language of the activity. Myklebust has expressed the three functions of language as follows:

> "Receptive language is that language which others use to make us understand what we hear and read. It is the first language which is meaningful to the young infant.
>
> "Inner language is that language which we use to communicate with ourselves. It develops after receptive language is firmly established or well understood. Only by maturation of inner language is expressive language possible. It includes thinking in language symbols.
>
> "Expressive lanugage is that language we use to make others understand us. It includes speaking and writing. It is dependent upon good receptive language and inner language development and only makes its appearance as speech in the young child after the other two have been established."[4]

It is precisely in the most important area of all, in receptive language, that the deaf child is found wanting. Language, therefore, is the keystone in his educational structure. And, paradoxical as it may seem, in the schools where the oral method is used, aural reading helps the aurally handicapped child in his interpretation and understanding of his environment. Language is our objective but it is also the

tool with which we reach that objective. It is the end, and the means to that end. It is the double-edged sword with which we cut through the walls of silence and isolation that enclose the deaf child.

In giving language to the child with a severe aural handicap, emphasis is first laid on building up rich associations with objects, situations, relationships. Once these strong associative images have been built in his mind, they will remain relatively intact and become integrated with the spoken words, and later with the written or printed symbols. Comperhension must precede expression. For it must be remembered that words are important only for the ideas they stand for. As Hayakawa so amusingly put it, the idea is a "verbalization of a cerebral itch."

The child, in this learning process, reads his teacher's actions and gestures; he reads the teacher's facial experssions; he learns to synthesize what he has seen, felt, experienced and correlates it with the language. Only then can it be truly said that he has trapped the language.

Thus, through many purposeful activities the deaf child laboriously accumulates a vocabulary of words and expressions. He learns the language of simple sentences. He learns to evoke a vivid image in relation to a word or series of words. He has learned to think in language. Often this associative imagry is so strong that in later years, when he uses the word "friend" for instance, he will clasp his hands together in involuntary kinesthetic response to the verbal image expressed. We can say, that here we have, in terms of meaning, a true reactive behavior in the organism.

The aurally handicapped child's progress in his acquirement of language—aural and in printed form—is com-

plicated and obstructed by the very nature of language. A word in isolation may carry one meaning while that same word used in a grouping of other words conveys an entirely different meaning. Selectivity of meaning is therefore necessary. In every sentence we have two distinct elements: first the expression of certain percepts representing ideas; secondly, the indications of certain relations existing between them.[5] As sentences become more complex, as more ideas are expressed, the greater is the amount of precision needed in the selection of meanings implicit in the organization of the sentence. When we say, "The boy went to John's house," the ideas of John, the boy, house and the act of going must all be combined in relation to each other. After the image is formed in the mind by mental activity, recognition and analysis of the elements are interconnected and synthesized to form the verbal images expressed. When we add other ideas, such as, "The boy went to John's new house with his brother and sister," we have added more elements which must be recognized, analysed, synthesized and combined to form a new verbal image.

Relationships and organization of language is therefore an important part of aural reading. To the aurally handicapped child this is a serious and continuing problem: as he matures he must constantly add to and strengthen his aural vocabulary; more seriously, he must learn to distinguish between single word concepts and the nuances of meanings which that word may assume when combined with other words or groups of words.

Perhaps the best way to illustrate the confusion of the deaf child when confronted with the instability of language —the contrast as well as agreement which takes place with

words when placed in context with or to other words—is to examine the common expression, "going to have a party." The aurally handicapped child may be familiar with the several words, "have", "go", "going", "party". But as used in the expression to denote expectation, they are all thrown out of kilter.

As another example, let us examine the sentence, "I made a new friend." Here you have complete mystery for the deaf child. His mental image of making something, or building something cannot be correlated with the word "friend". For how can you make or build a human being? Idiomatic sentences or phrases therefore must be experienced as units of meaning: they must be taught en toto as forms of language usage. "The proper meaning for such sentences (or phrases) cannot be constructed by a manipulation of separate meanings attached to words within the sentences,"[6]

Again, let us examine a book which is filled with "language demons" for the deaf child. "Curious George Rides a Bike," by H. A. Rey, is a simple book, vastly enjoyed by pre-school and kindergarten children. Hearing children love to hear it read, time and again. But aural reading of this story would be imcomprehensible to the deaf child without careful preparation and interpretation beforehand. An excerpt from the story follows:

> Watching his fleet (of paper hats) sailing down the river, George felt like an admiral. But watching his fleet he forgot to watch where he was going—and suddenly there was a terrible jolt: the bicycle had hit a rock and George flew off the seat, head first!

This paragraph is filled with pitfalls for the language impoverished deaf child. Truly, he would be adrift in a sea

of words! In order to ensure comprehension, it would be necessary to see that all the nouns and verbs were firmly fixed in the child's mind's eye. Secondly, the special language of the story,—watching his fleet; sailing down the river; felt like an admiral; suddenly there was; flew off his seat; a terrible jolt, head first;—would all have to be strongly implanted through experiential activities and lip reading. Only after this had been done could the amusing little episode be thoroughly appreciated. Only then would one see the excitement in the story mirrored on the faces of children with severe aural handicaps, and hear their outcries of interest. And above all, only then would teacher and children have experienced the supreme pleasure of complete understanding, of creating order where there was confusion.

In the 1957 conference, Dr. Peter L. Spencer spoke of perceiving as sensing with meaning. He said, "Memory is important, but one cannot remember that which one has never experienced. One must first create. Then one must retain, recall, and apply what one has created. This often leads to the re-creative process."[8]

This is precisely what we are concerned with in the aural reading of children with severe auditory handicaps. Not with single words, but with a configuration of understanding that will become permanent in effect, and carried over to later experiences. It is a mental response, a discriminative response that we seek rather than a mere verbal one. Through interpretative aural reading we hope to involve the aurally handicapped individual in a creative learning process and to recreative language.

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The Edge of Mystery

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A favorite pastime of mine is to stand on the cliffs overlooking the mighty Pacific and watch the endless breakers dash against the solid rocks which they have carved into mysterious formations. I know that I can see only an infinitesimal part of the ocean and cannot probe into its great depth with the naked eye. But I did not realize what the experience meant to me in my professional work until I read the statement by Robert Oppenheimer, "We stand at the edge of mystery". I was intrigued by it. Suddenly, almost mysteriously, I was caught up in a whirl of thinking about the experiences which a young child has as he begins to extend his reading through the use of more and more abstract symbols. I was reminded that the child might be in as mysterious a world as the ant described by a second-grade pupil when she wrote:

> "An ant thinks that pretty flowers are giants yawning from long winter sleep. Green trees are giant, high clouds."
>
> —Sheryl Fellows, Rancho Santa Fe School

Of course, the distinguished physicist referred to the yet undiscovered wonders of science, but to me his thought applied also to the yet undiscovered wonders of human personality in the reading process. As a teacher I have been baffled, yet hopeful, that some day my yearning for the magic formula, the perfect catalyst, would yield the secret of enabling a child to achieve naturally and normally the

use of his own ideas and his own language in creating reading competence commensurate with his need in our rapidly changing world. I have wondered by what chemistry a child might be lifted out of himself into a plane of creative expression which would reach beyond normal expectations, far beyond the myth of the national norm. Now I am struck by the idea that all this is at the edge of mystery, that each child can and will experience something as magic as a chemical change provided he is surrounded by and furnished the ingredients in proper balance.

As a teacher I am sure that I have seen it happen. I have lived around it. In fact, it happened to me as a child. I was there when the great discovery was made that I could already read "reading," that I had somehow stepped over the edge of mystery. Yet, to this day, after more than three decades, the answer for me as a teacher is still at the edge of mystery. And because it happened to me and to others I have known and taught, I find myself impatient with those who are demanding the precise efficiency of industrial assembly lines in reading instruction for children.

I can agree thoroughly with those who are seeking answers which can be printed and distributed that it would be easier to operate crowded schools with assembly-line methods. I wish that we could achieve our goals in reading instruction by methods which are currently in vogue. I refer to the basic reader approach of teaching skills developmentally and with planned vocabulary control. This program seems logical and right, but somehow it seems to be based on what Regina H. Westcott* calls the two great mistakes our Creator made when He created mankind.

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*"A Thousand-and-One Pairs of Eyes," *Why Teach?* edited by D. Louise Sharp. New York: Henry Holt and Company, pp. 233-234.

The first mistake which causes such a dilemma in the teaching of reading is the fact that we are so created that no one person can pass along to any other person one single idea, urge, ideal, vocation, or ruling passion. Dr. Peter L. Spencer stated this problem very ably in the Twenty-Second Yearbook of the Claremont College Reading Conference when he said:

> "We create our perceptions. Consequently, we create our ideas, our aspirations, our goals, and even our dilemmas. None of these can be transmitted ready made from one person to another. Ideas and ideals are personal things. They are possessed only by their creator."

Every day thousands of teachers are trying to *give* thousands of ideas to thousands of students. If we could *give* our ideas and ideals, it would be a quick and easy way to get things going in this old world according to our own particular aims. Yet it can never be done! Everyone has to create for himself whatever ideas are truly his. He may imitate the conduct of others and repeat by rote the statements, platforms, and creeds of others. Nevertheless, all that we truly learn, we must learn for ourselves—within ourselves.

Isn't this a hopelessly slow and unwieldy arrangement for mankind? Isn't it too bad that we can't teach all children to express themselves as beautifully concerning a worm as was expressed by the child who wrote:

Fuzzy

> "Donna has a fuzzy thing. It doesn't make a noise. It can't even sing like little girls and boys. I can't help laughing when I see the way it moves around. It's just a little bitty bit of fuzz crawling on the ground."

A realization of the implications of the first mistake in creation is a severe blow to most reading programs in our schools today. But the second mistake is like unto it.

Each baby is born into the world without any knowledge, ideas, or convictions besides a few vague rudiments. Each infant must start for himself to acquire such learnings of mankind throughout all ages as are to be his during his lifetime. Each infant has to start for himself to acquire the skills he will need for maintaining life itself, for communication, for getting along with others.

Isn't this a most *wasteful arrangement, and discouraging?* Even a second-grade child wonders about this apparent mistake when he writes:

When I Grow

"Oh, how is it, I'd like to know
A child and a flower both grow.
A flower grows fast,
But it seems to me a child grows very slow.
Oh, why are we different?
I'd just like to know!"

We can contemplate the convenience of being able to teach directly. We can even imagine the wonder of having babies born into the world with knowledge of the past, with ideals, and convictions inherited from their parents. Then we could get down to the business of teaching about our present world and preparing our young people for the future.

But is that such a good idea, after all? Would it work a hardship on some children? Could it be possible that our Creator knew best when He decided to make us as we are? The adjustments we have to make as teachers seem to be

worth the effort when we contemplate the possibilities of unique growth of personality and distinctive social development. They soar beyond the limits of our greatest imagination—*providing the best among us are called to be teachers.*

To be given access to the colossally varied and rich learnings of the past and present while being born free to accept or reject them is indeed a marvelous arrangement that has and can yield breath-taking outcomes. To realize that the teacher cannot teach anything directly, but can only lead the learner to the edge of mystery is indeed fortunate. It assures each succeeding generation that the best books are yet to be written, the best paintings are yet to be painted, the best governments are yet to be formed, the greatest explorations are yet to be accomplished, the best is yet to be done by them. By the same token, it means to those of us who are teachers that the best in our profession can be achieved in the future.

This brings us to the point of discussing some of the things that are happening now in reading instruction which have potential for yielding the magic formula which will enable a child to achieve naturally and normally reading competency commensurate with his need in our rapidly changing world. I realize that I have been invited to this conference because of the work of many teachers in San Diego County who are helping children lift themselves into a plane of creative expression which reaches far beyond normal expectations, who are exploding the myth of present national norms as a measuring stick for reading achievement of young children in our geophysical age.

Actually, what has been happening is so simple that it is difficult to make a speech about it at a conference such

as this. All that has been done is to recognize in daily practice some of the guiding principles that I have just described. The only reason that the teaching is identified as "reading instruction" is that teachers in most schools are free to schedule large blocks of time for reading instruction in the primary grades. It is much more than reading books.

Some of our visitors are bewildered that we called what we are doing "reading," because we are placing much emphasis on *primary reading* as contrasted with *secondary reading*. One supervisor reported to me that a teacher who spent a half-day visiting in one of our schools saw some superior teaching, but she didn't see one teacher teaching reading. She saw children painting, she heard them discuss ideas, she witnessed the teacher record individual ideas for children, she saw children write what came from within them, she heard them read what they had written and was well aware that the children were reading at a level beyond normal expectation. What she didn't see was her own pattern of teaching reading being reproduced in another classroom. To me this was one of the highest compliments that could be paid the teachers who were observed. They were demonstrating that children *will* cross over the line if they are led to the edge of the mystery of expressing their ideas with abstract symbols and being able to recall them through the process which we call "reading". They were producing positive proof that children can recall what they have written through the process which we call reading," and that they can recall what others have written.

As far as the children are concerned, there are a few basic understandings which grow as they live and learn together. They come to know through their in-school and out-of-school experiences that:

What they think about they can talk about.

What they talk about can be expressed in painting, writing, or some other form.

Anything they write they can read.

They can read what they write and what other people write.

As they write they use the same symbols (letters) over and over.

Each letter stands for one or more sounds that they make when they talk.

Every word begins with a sound that they can write down.

Every word ends in a sound that they can write down.

Many words have something in between.

Some words are used over and over in our language and some words are not used very often.

What they have to say and write is as important as what other people have written for them to read.

Most of the words they use are the same ones which are used by other people who write for them to read.

As children live and learn the simple facts of reading in a school program which is truly an integrated, balanced program from kindergarten on, they develop more mature concepts about *what reading really is in the world about* them; such as, its values in their own lives, the skills they need to develop in order to achieve their reading purposes, the relationship of reading to critical thinking, and the stimulation which reading can give to creative living. The slow learning child, the emotionally disturbed, and the "immature" make significant progress in a program where his own ideas are *valued* and *used*. The gifted child has opportunity

to develop nearer his potential than he finds in the highly structured, tightly controlled basic reader program.

The teacher, recognizing that each child brings to school a language personality which is different from every other one in the classroom, determines to preserve that individual personality at the same time that certain common understandings and skills are being habituated. To do this, the procedure from the first day requires the individual to express his *own* thoughts, ideas, aspirations, and ideals. This is quite different from the usual beginning with experience charts which are supposed to represent the thinking of the class. It is poles apart from the readiness worksheet approach.

From the beginning of first grade, children are expected to bring their own thinking into the classroom and share it through speaking, painting, writing, and other means. The teacher works with individual contributions to help the child move from oral and pictorial expression of his ideas to expression through writing. As the child writes, he reads—not only what *he* writes but what *other* children write. There is no control of the vocabulary to which children are exposed except the control which is inherent in the group itself. This is natural control rather than the artificial control imposed by the so-called developmental reading series. The reading books are used widely, but for purposes which they can serve most effectively.

In the initial stages of growing into reading, the teacher assumes the responsibility for writing on each child's painting. She invites a small group to bring pictures of something they have painted. There is no need to know the "readiness level," the I.Q., or other information commonly considered to be necessary in grouping children for reading. The one

basic requirement is that each child represent and express his thoughts.

As the children group themselves around the teacher so they can all observe her write, one at a time each child shares a phrase or a sentence which he sees translated into a story right before his eyes. It is real magic! The teacher all the while "chats" with the children about—

Names of letters
Letter formations
Sound values of letters and group of letters
Beginning sounds
Sounds in-between

She proves to the children that anything they say can be written down with the letters in our alphabet and that a person who knows how to read can tell us exactly what we said without hearing us. After the "stories" are bound into books, the teacher can tell a child exactly what he said a few days earlier because *she can read writing* as well as pictures.

In addition to the small group work, teachers take individual stories from children when working with the total class. This is most frequently done when a child is sharing his thinking about a painting done at the easel or on the floor when large paintings are done. This procedure gives unity to the class in relation to this all-important matter of learning to read. There is not, however, uniformity of learning experiences.

At a time that is sooner than most of us expect, a child requests to write his own idea with the help of the teacher. This we call a "self-commitment". The teacher has led the child to the threshold of his own mind, and the child steps

across on his own accord. This is a significant moment in each school year—and it always happens! One child is *ready*. Another follows—then another and another. Soon a group of children has told the teacher that it is ready to take a "peek" into some of the other mysteries of reading—the mysteries which are in books that contain what other people think is important enough to write about. (Notice that the teacher did not tell the children that they were ready for reading in other people's books.)

Psychologically, the self-commitment is the crucial point in the first-grade reading program. After a child has made it, he does not retreat from it. This is the chemistry which seems to lift a child out of himself into a plane of creative expression which knows no bounds. It is the opposite approach from one commonly used where the teacher, through a series of readiness tests, places a child in a group according to his ability. This, I hope, is a mistake which teachers in the future will not make. In the age which is ahead we cannot afford to harvest a crop of disabled readers caused by early defeat in the first grade. The environment of the classroom must be such that each child can and will strive to realize his fullest potential. Any goal short of this is not worthy of the good teacher.

There are some that state their fears of a language program which derives its raw material from the language of the group. They are skeptical of the reading and spelling which children do and fear that basic reading skills might be neglected. These fears are not held by teachers who, by faith, have embraced some of the simple truths which we know about human personality and have developed techniques of helping language to grow in a natural, meaningful setting. Teachers in San Diego County who work in the

writing-reading program keep better records and know more about the development of skills in reading, writing, and spelling than a whole state full of teachers who rely upon the ill-conceived and out-moded reading series that were produced twenty years before the children who are using them were born. (Revisions and new editions have not changed the basic philosophy.) I do not wish to imply that such materials have not been useful in the teaching of reading in the past, but they are not good enough for today. I cannot support a program as *basic* when I can point to hundreds of teachers who have simple techniques which will yield from four to five hundred per cent gain in matters of reading that can be measured. Neither does a comparative evaluation take into account the competence in spelling, in self-expression, in creative thinking, in assuming personal responsibility for progress, in developing an interest in reading and writing out of school, and many other values which accrue in a truly integrated program of learning experiences.

In this presentation I have not given much attention to the program in San Diego County beyond the first grade; but I believe that you can project this program in your own thinking into the succeeding years that a child is in school. Some of us who worked to establish such a program had hoped that at least half of the children would be well advanced enough in reading skills that they would not require systematic instruction after the third year. To our surprise, many of the children reach that point in the second year. The time once spent in the endless round of reading circles is now spent by the children in actual reading situations where there is information to be located, problems to be solved, horizons to be lifted. There is time for creative self-expression in many media. Children are not only spending

more time with mathematics, they are writing their own problems. They are not only studying about science, they have the skills and attitudes necessary for engaging in problem solving with a scientific attitude. Critical thinking is the warp and woof of the fabric. No child can succeed without using his own thinking power. We are not sure of what lies ahead, but we welcome the opportunity to stand at the edge of mystery in such fascinating work—the teaching of young children. Actually, we recognize, as have great teachers throughout the ages, that each time we pause at the side of a young child who is engaged in creative expression we are standing at the edge of mystery. We recognize that ideas and ideals are personal things which are possessed only by their creator. We recognize that ideas are not found in books, but in the person who creates them. We recognize *daily*, over and over again, that reading *cannot be taught!*

The foundations for reading experiences can be laid.
The basic mechanics of the process can be imparted.
Examples can be given which will help distinguish between the multitude of symbols which our society uses to represent speech sounds.
Habits of reading from both primary and secondary sources (as defined by the Claremont College Reading Conference) can be established.
The young, vigorous minds of children can be initiated into the mysteries of the past and the future.
With luck, the teacher can help some children to overcome disabilities which result from overemphasis on reading from "readers".

Externally, there is little more that can be done. Beyond that, the reader must travel alone. The distance he will travel will depend on his own stamina, his experience background,

and his I.Q. (which interpreted means "inner quest" as well as "intelligence quotient"). The teacher can, in effect, help each child to believe in himself and have enough faith to step across threshold after threshold without knowing what is on the other side.

Yes, as teachers we are at the edge of mystery each day of our lives if we believe honestly what Edwin O. Grover has expressed so well in "The School Teacher's Creed"*:

The School Teacher's Creed

I believe in boys and girls, men and women of a great tomorrow; that whatsoever the boy soweth, the man shall reap.

I believe in the curse of ignorance, in the efficacy of schools, in the dignity of teaching, and in the joy of serving others.

I believe in wisdom as revealed in human lives, as well as in the pages of a printed book; in lessons taught, not so much by precept as by example; in ability to work with the hands as well as to think with the head; in everything that makes life large and lovely.

I believe in beauty in the school room, in the home, in daily life, and in out-of-doors.

I believe in laughter, in love, in faith, in all ideals and distant hopes that lure us on.

I believe that every hour of every day we receive a just reward for all we are and all we do.

I believe in the present and its opportunities, in the future and its promises and in the divine joy of living.

Why Teach? edited by D. Louise Sharp. New York: Henry Holt and Company, 1957, pp. 83-84.

Reading Without Light

Dr. Floyd Corbin

When the bulletin covering last year's Claremont College Reading Conference came to my attention some months ago I was very pleased to see the broad interpretation which the Conference, under Dr. Peter Spencer's leadership, has put upon the reading process. I said to my wife at the time, "I am grateful that I have the opportunity to appear before that group and possibly share with them some of the reading experiences I have had and in that way I may help them see something they have already recognized perhaps, but help them understand it a little better." It is with that thought in mind that I bring you some of my experiences this morning.

That is all we can ever give to an audience,—that is all we can ever give to any person: our own interpretation, through our experiences. I was very pleased, Dr. Spencer, with your interpretation of the extractive and abstractive procedures in reading.

Now, so that we can understand ourselves a little better, so that we can improve our communication among ourselves, we might touch for just a minute upon General Semantics and what it teaches,—or what I think it teaches. I believe in essence it says that the first level of understanding, of communications, is the sensory perception. Persons who function from that level of understanding respond immediately to the stimuli they receive through the senses. They are living on a strictly food-shelter-clothing basis.

Among them occasionally there will be a person who

will begin to expand his sense of awareness he may use an instrument to do it. For example he may look out through a telescope into our solar system and be so amazed by the immensity of it that he begins to ponder upon it and think about it. As he does, he moves into the thinking-feeling stage or level of understanding and communication. As he continues to ponder and to think upon the stimuli he receives from his various pursuits, he begins to set in motion the creative process. Through him pour ideas—idealistic, altruistic ideas, philosophical, democratic and religious ideas; and as he moves up to this level, he realizes that beyond this lies the Great Unknown, the Great Beyond. Out of that Great Unknown come other ideas, other senses,—the intuitional perhaps, or the extrasensory perception that Dr. Rhine of Duke University has investigated.

The main thing is that it comes. As yet I don't think we have any idea through how many receptors or how many different senses and stimuli we gain our knowledge. It has been recognized of course that we get them from five or six senses, and according to the school, the psychologist or the individual it has been said that we gain somewhere between 60 percent and 80 percent of our knowledge from our sight, the stimulus of light on the physical eyes. But as Dr. Spencer pointed out to you in his opening address, the range of light rays which we can perceive is a very minute part of the ray range that exists. The gamma ray, x-ray and many other rays are around us but we cannot see them. So man, standing from his little point of observation is only a pin point in the infinite. Yet within him is the ability to draw knowledge through him and to understand part of the Infinite, although he himself is finite.

They say that once you lose a sense, your other senses

become more acute. To a degree this is true, but I found that they become more acute only as you pay more attention to them. I have been without sight nearly 15 years, 10 of which I haven't had even light perception; but I found that as I began to pay attention to the stimuli from the other senses, to think about them and ponder upon them, I began to get the answers through which I could control my actions. This lets me *focus my attention on ability instead of disability* and I can truthfully say that I am the happiest I have ever been. Not being able to see is only an inconvenience, once you get over the fear of sightlessness.

I would like to share some of these experiences with you for just a few minutes this morning. I think that I should share them, because they have meant a great deal to me and I believe they will show you that there are many phases of reading. When you use a cane "to see through" and, if you are not walking with someone, let's say you come up to a curb. If you came up to it with your cane standing straight up you would say that the stimuli you receive through the cane, both through sound and touch, would tell you exactly how high that curb is. But you don't touch the curb with your cane held straight,—you come up at an angle so that the tip of the cane touches the bottom of the curb, and at that moment, *if* you are completely relaxed it doesn't make any difference whether that curb is 4, 8, 12, or 16 inches high—your foot will automatically fly to the top of it. You will never miss it *if you are relaxed*. That used to astound me, as I began to develop the technique; it seemed as if my foot even had a sense of intelligence within it. I am still not quite sure but what maybe it does see! I don't know because it is so automatic. I have also learned to give thanks every time one of these little things shows up.

But there is something beyond the sense of touch and hearing, I believe, because I have travelled all over the state alone many, many times. It doesn't seem to matter whether it is San Francisco, San Diego or Podunk, there is that little voice within you, the Knower or whatever you wish to call it that will guide you and tell you what is ahead. Often, going down the street, the little Voice within has said, "Floyd, you'd better check it," I have stuck out my cane, and I have found a reason for it. It is generally a warning of some danger. But this is only part of my reading process.

A few months ago after I had lectured to an organization, one of the officials came up and said, "Dr. Corbin, there is a gentleman here I would like to introduce to you." Without saying anything more he introduced us. We shook hands, the man said to me, "You know, you intrigue me. I would like to test you, to see how perceptive you really are. What can you tell me about myself?" I answered, "As a rule I refuse to be tested. But when I feel strongly about someone, I find that I am very seldom wrong. So I am going to accept your challenge because I feel very strongly about you." I went on, "You are either a Southerner, speaking like a Negro, or a Negro talking like a Southerner." (Without sight you can't tell the difference.) "But I do feel you are colored, you are such a height, you weight so many pounds, you are such an age; you have a good clean clear look in your eye, a nice round open forehead and you are either an executive or an educator, or both."

He said, "You amaze me. You missed on only one point—I am two pounds heavier than you told me. The rest was right." It developed that this man was a former president of Leland University in Baker, Louisiana, one of the leading Negro colleges in the South.

In telling you this I am not saying it in a bragging way. I am bringing it to you very humbly because I want to share these other reading techniques which one can develop through his senses, with the idea that this may stimulate your thought, your imagination. They may give you an answer to some things that you have experienced along these same lines, because I am sure we have all experienced them—not that only I have, just because I happen not to see. But this sense, this Knower that is within me has a perceptiveness and many times I walk into a building, an office or a home and get a strong feeling about it. I have often said to my wife "Is this room rose—or yellow, or green?"—or some predominating color, and I will be very close. Again, I don't like to be tested, but when I feel it I can express it and it is generally true.

But I have found other ways of reading, and among them happens to be the ability to tell personality by the way a person walks, not completely, but traits about them. The other day after we had spent a pretty busy afternoon writing letters I said to my wife "I'll walk over to the mail box with these while you get dinner." As I reached the main street on the way to the mail box I heard a woman coming from the other direction, from behind me, walking quite fast. I crossed the first intersection just to show her I could do it alone, and then I paused and waited for her and as she came even with me I said, "I'd like to take your arm and walk to the next intersection with you." She said "Of course, get hold of my arm." As we started walking I said "I imagine you are wondering why I asked if I could walk with you." She said "Well, I presume you can walk faster that way and it helps you." I answered, "That's true, but that isn't the main reason; I have developed a way of telling

one's personality by the way they walk and I could tell you are a friendly open person and that I wouldn't be rejected if I asked to take hold of your arm. It is a help, I can walk faster, I do need help across the next intersection because of the heavy traffic, but your personality was what made me stop you."

This intrigued her; of course it would because, you see, it lifted her out of the category of just another woman and made her an individual, which from the standpoint of feminine psychology is a wonderful thing. But I didn't say it from that point of view. I said it because I wanted to share with her something I had become aware of and by telling her about it should could also be aware. As we came to the mail box she said, "You intrigue me; tell me some more of your experiences."

So I said, "Well, I believe there is another thing that is coming. It is that we will be able to read people's minds without any spoken word. I know my wife and I do it all the time. She is always "picking my mind". I don't get a thought sometimes but what in about thirty seconds she starts talking about the same thing. We both do it and we have often said, "Well, this is wonderful!" We don't know exactly what it is yet and it doesn't make any difference—it is an extra sense. Then I told her of hearing Dr. Wilson of Unity Church in Los Angeles on the radio a few mornings before telling of the woman who had been practicing one of the teachings of Unity, that of saying in effect to everyone she came in contact with, "God bless you!" One day she met a blind man on the street and as she got even with him, from force of habit she simply said mentally, "God bless you," and as he passed her he turned and said,

"And God bless you too". It caught her off balance and she didn't know what to say to him.

Now the reason I bring this up is that I think in our field of human relations we have failed to ponder upon and think about the responses that we get to the same degree that we have done in our scientific field. For example, the Greeks 2300 years ago knew that there was such a thing as an atom. They said that this atmosphere surrounding us which seems to be completely transparent is filled with infinitesimal particles so small they cannot be divided further, and they called them "atoms". For many hundreds of years that knowledge lay dormant, all through the Dark Ages and up to less than a hundred years ago. I believe it was Dalton, wasn't it, who tried to isolate the atom so he could see it; he couldn't do that, but he did see the shadow of it moving through the smoke box and from this discovery the scientists following him were able to deal with the atom.

Emerson said the same thing many years ago that the semanticists are saying now, only in a different way: he said that there is a field of knowledge available to all men and as they turn to their problems and think about and ponder upon them that field of knowledge begins to flow through them, whatever the problem. They may have had to read a book to stimulate their imagination, to get them into the right frame of mind where they communicate and draw through them this knowledge. You can call it anything you want, but—it works! Edison knew that it worked. He often pondered upon his inventions and when he couldn't solve his problems he would lie down and sleep a few minutes; when he awakened he would often have the answers.

The psychologists call this the "Unconscious" or "sub-

conscious" mind; the philosopher says it's the Infinite Mind; the religionist calls it the Mind of God. It doesn't make any difference what you call it, it's there, available for us. But here is the thing that we will find as we begin to ponder upon the different stimuli we get in our human relations: we will begin to gain stature, and we will begin to communicate with others without using words. Now this is a long way off, but I am quite sure . . . and I will "get my neck out" still further and say that as man begins to think more about his relationship with other men and as his thoughts become more constructive and, let's say, more loving, he will be able to read others' thoughts more easily than if his mind continued to be destructive and belligerent.

The Weightier Matters

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In the twenty-third chapter of Matthew, Christ is reported to have severely criticized some of his contemporaries, saying, in part, "Woe unto you, scribes and Pharasees, hypocrites! for ye pay tithes of mint and anise and cummin, and have omitted the weightier matters of the law, judgment, mercy and faith; these aught ye to have done and not to leave the others undone." The scribes and Pharasees had mistakenly overemphasized some relatively minor aspects of the Mosaic law and in so doing had overlooked the more fundamental aspects or the "weightier matters of the law."

In order that we as teachers of reading may not fall into this same error of overemphasizing lesser matters at the expense of that which is more fundamental let us consider what might be the more important aspects of teaching children to read written material. *Important Aspects of the Teaching of Reading.*

Perhaps we might find the weightier matters in a consideration of the following five facets of the teaching of reading: the pupil, the teacher, the situation, the materials, and the methods.

Certainly most persons would agree that the pupil, the individual learner, is a key part of the process. Certain

facts about the pupil would be important to know and would have direct bearing on his ability to learn to handle the printed symbol. Among these facts we would probably include intelligence, adjustment, physical factors, and social factors.

Mental maturity is one of the critical factors in reading readiness and intelligence determines in part the quality of response to a reading situation. For these and other reasons we would want to include this factor in our consideration.

The amount or quality of what might be called psychic energy that a child can bring to the reading task is partially dependent on the manner in which the child has responded to the pressures that have been brought to bear upon him. His adjustment affects his reading and therefore might well be considered among the important factors in the teaching of reading.

Because the child responds with his entire being and because of the visual, speech, and motor aspects of reading the printed page, we must include physical factors in this discussion.

The social forces currently and cumulatively operating on a child help to shape his reading future. Among these would be included the aspiration level of his family, the quality and extent of his experiences, and the values held by his sub-culture group.

What are the important things about the teacher of reading? Perhaps we could include for consideration such factors as training, experience, intelligence, adjustment and health.

The quality, nature, and amount of training a teacher

brought to the teaching of reading would greatly affect the quality, nature and amount of reading skills acquired by the pupils. In some states full credentialling of an elementary teacher is possible without any special course being taken in the teaching of reading.

Even without special training, a teacher acquires with experience some skills, new insights, and greater understanding of the teaching of reading so that this factor, experience, might well be included in our discussion.

The results of the training, the influence of experience as well as the creative imaginativeness with which a teacher approaches the instructional task are determined in part by the intelligence of that teacher. Teacher intelligence thus becomes one of our factors for consideration.

The mental health of the teacher, the adjustment to forces and influences, determines in part the quality of his performance and would thus be included in our list. In a similar manner would the matter of physical health determine performance so that it too would be included. Few would deny the importance of the factors we have considered about the teacher and their relation to the teaching of reading.

Certain elements in the teaching-learning situation itself are worthy of consideration. Included among such elements might well be pupil-teacher ratio, financial structure of the school district, tenure policy, the total teaching program or curricular load, and supervisory conditions.

Conceivably there is a limit to the number of pupils one teacher can successfully teach. Where that limit is has been debated and subjected to some study. Perhaps not too much exception can be taken to the statement that a given

teacher can do a better job with twenty pupils than with sixty. Teacher-pupil ratio then may be a factor.

The ramifications of financial support and ability to afford a good educational program are legion. That the financial structure of a school district, including the funds available to it from state and federal sources, ultimately influences the teacher-learning situation cannot be gainsaid. This factor, then, must be included in our consideration.

Administrative policies relating to teacher procurement, placement and tenure influence the ultimate quality of the teaching-learning situation in many ways that will not be considered here.

Reference was made above to the crowded classroom. Perhaps just as important to the teaching of reading is the matter of the crowded curriculum. Some have said that we need to clean up our cluttered curriculum so that we can teach. Certainly the number and nature of other instructional requirements made of the teacher would influence the teaching of reading.

An airline captain told me a number of years ago that it was harder to be a co-pilot than a pilot. His reasoning was that the pilot needed but to do a professional job of flying. The co-pilot, on the other hand, was required not only to do a good flying job, but to keep his captain pleased with his performance as well. Similarly, many teachers must do more than a good job of teaching—they must keep their supervisors pleased as well. This sometimes presents a conflict because of differences between the ways in which the teacher and supervisor view the teacher's job. Thus the supervisory situation must enter our picture.

Materials and methods come to mind as additional im-

portant factors in the consideration of our topic. The availability of materials, their adaptability to the particular needs of a given group, the degree to which the pupils can identify themselves with the story and its setting all influence the teaching of reading.

Methods vary. We know that children have learned to read by greatly contrasting methods. We know further that a given approach may not work equally well with all classes in a given school or with all pupils in a given class. Since this is so it becomes important to use the best available method for a particular child. Thus method can be seen as an important facet of our problem.

Factors That Are More Important

But when we have spoken of the pupil, the teacher, the setting, the materials and the methods, have we included the weightier matters? Can we rank order these factors in terms of their relative importance?

To both questions I would answer, "No!" We cannot rank order the factors because they are all important. The critical factors in school "A" may not be operative in school "B". We have not included the weightier matters because most of what has been mentioned above is relatively trite. Included were a few facts, some concepts, and a generalization or two. The weightier matters have not yet been presented.

Facts, concepts, and generalizations are important to the teaching of reading. Generalizations are more important than concepts because a generalization is an expression of a relationship between or among concepts. Concepts are more important than facts because they stand for the accumulated experience of facts expressed as abstractions.

In a similar manner techniques of teaching are less important than principles of teaching. If then, we were to reorganize all that has been included above into facts, concepts, and generalizations or into techniques and principles, we could determine the weightier matters.

But we have not as yet included a more important factor. To introduce that factor let me present statements from two great men. Einstein is reported to have said that the crying evil of our time is perfection of means and confusion of ends. Santayana has defined a fanatic as one who has lost sight of his goals and has redoubled his efforts to reach them. The more important factor we must yet consider is the matter of goals. We need goals—goals that are expressed, clarified and espoused.

What then are our goals? I submit for your consideration the goal of maturity in reading.

What is the mature reader? The mature reader knows when it is to his advantage to read. He knows how to find the written matter that will satisfy his need for reading. He has a growing vocabulary, one that grows because of his word attack skills, because of his ability to learn from context and because of his habit of using the dictionary as needed. He knows how to evaluate what he has read, how to judge the adequacy of his information, how to escape the trap of the deceiver, the misinformed. He knows how to adapt his rate and manner of reading to the material and purpose at hand. He has good taste in literature, reads material of lasting value. He likes to read.

What is the value of having as a goal helping pupils become mature readers? This goal serves as a criterion against which every technique and principle can be judged. The

teacher can ask himself, "Will what I am now teaching this child, what I am asking him to do, the material we are using, move him toward or away from the goal?"

The goal of maturity in reading is a long range goal. There must be intermediate objectives along the way. In flying transports from Brazil to West Africa a few years ago it was necessary for us to have a goal and an intermediate objective. We could not reach the goal of West Africa without first reaching our intermediate objective of Ascension Island, a dot in the middle of the south Atlantic. We had to arrive at that objective in such condition that we could proceed to our ultimate goal. Similarly, we must take care that our pupils arrive at the intermediate objectives in reading in such condition that they can continue toward the long-range goal, maturity in reading. If our immediate objective is to teach them some phonic principles, we must be certain that the experience does not kill the desire to read. If our immediate objective is to develop a sight vocabulary, we must be certain that the experience does not teach disgust for reading.

With an acceptable goal thoroughly understood and enthusiastically accepted, the teacher can hold high his head. He knows what he is doing and his purpose enobles him. The story is told of a traveler coming upon three stonemasons in a quarry. When he asked what they were doing the first replied, "I am working for $2.00 per day." The second said, "I am cutting stone." The third had a more worthy goal. He answered, "I am building a cathedral to my God."

Teachers, when similarly approached, might answer, "I am trying to keep order," or, "I am teaching vowel sounds,"

or, "I am helping children on the road to maturity in reading."

You may recall that when Christ said that certain people had or had not fed, clothed and given him drink, they had asked when they had done or failed to do these things. His answer was, "In as much as ye have done it unto one of the least of these my brethren, ye have done it unto me." With the "*inasmuch*" in our minds, let us consider what might be a more modern version of the same account. Listen to the children.

"I came to school without my breakfast and you fed me stories about upper-middle class children with whom I could not relate."

"I came with my father's curses and my mothers weeping ringing in my ears and you clothed me with the 'at' family and medial vowel sounds."

"I came thirsting for recognition in my own right and you shoved my older sister's successes down my parched throat."

Or, perhaps they might say,

"I came starved for love and affection and you fed me your esteem and my class-mates' regard by helping me to succeed at my level and my pace."

"I came naked of experiential background and verbal facility and you helped me weave my own garments by letting me listen and talk, live, and do."

That teacher who observes the weightier matters and leaves not the lesser things undone, who sees the immediate objective in relation to the long range goal might well hear at some future time these words.

> "Well done thou good and faithful servant; . . .
> enter thou into the joy of the Lord."

How One School District Is Meeting the Needs of Its Rapid Learners in a Geophysical Age

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Professional interest in providing an optimum education for all children has always been high. Administrators have endeavored to secure the best qualified teachers and to provide the finest facilities and instructional supplies that their budgets will allow. All children have the same basic needs to learn skills, develop appreciations and become good citizens, but children achieve these learnings at different rates and in different ways because they differ in ability. Much progress has been made in the past decade in providing special educational opportunities for the mentally and physically handicapped child. Until recently little has been done to provide for the needs of the rapid learner.

Acceleration was the earliest way of meeting these needs and was considered the easiest method from the standpoint of both administration and instruction. However it was found that it failed fully to meet the need for enrichment and sometimes caused maladjustment.

Most school districts now provide opportunities for the rapid learner through acceleration, enrichment, and modified grouping. The belief is that children develop socially through some association with a peer group, or children of similar maturity and interests.

Current experiments in grouping include the following:

1. Cluster groups which consist of from two to ten

rapid learners concentrated in a single room of average and above average children.

2. Special instruction groups in which rapid learners are taken from the classroom to meet for a few hours or a half-day each week.
3. Summer programs in which students are given instruction of an enrichment nature.
4. Clubs which are formed around special interests of children.
5. Special classes which consist of graded or ungraded rooms of rapid learners.

Our school district has used the first four plans in grouping during the past year.

Although events within the past year have brought the problem of discovering ways of expanding educational opportunities for the rapid learner to the closer attention of the classroom teacher and administrator, Hattery*, among others, had written many articles on the subject. Hattery stated in 1950 that the need for leadership had never been more critical, especially in human and scientific affairs. He further stated that the peacetime demand for numbers of highly trained people in the natural, physical, engineering and human sciences, including politics, had never been greater. He observed that many vital occupations were critically undermanned, and that outstanding leadership, especially, was in serious small quantity. This article could have been written in 1958. Current articles describe this same need.

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*Lowell Hattery, "Why Waste Talent?" *School and Society*, 71:81-84, Feb., 1950.

The remainder of this paper will describe how our school district is meeting the needs of its rapid learners in a Geophysical Age. We believe that the rapid learner has, in general, similar needs to those of other children. All need to learn skills, develop appreciations, and to become good citizens. The development of these common needs may tend to come at an earlier age level since the rapid learner tends to mature earlier. All need to develop abilities to read effectively, "onself, other people and things."

We also believe, like all children they need love, care, understanding, companionship and recognition. The rapid learning child has *other* needs and problems which are not common with other children. The Educational Policies Commission* lists the following problems as being typical of the special needs of these rapid learners:

1. Acceptance of their mental ability — These children need to develop a realistic acceptance of their mental ability and to recognize the fact that such ability carries with it standards of achievement that are often in direct proportion to the ability involved. They also need learning experiences that will challenge and direct their mental growth qualitatively as well as quantitatively.
2. Acceptance of others—Rapid learners are faced with the problem of how to develop an acceptance of other people as unique individuals. While this is true of all children, the mentally gifted have a problem when making judgments about others in the school situation where general intelligence and ability to verbalize are highly valued.

*Educational Policies Commission. *Education of the Gifted*, 1950. Washington, D.C.: National Education Association.

3. Establishment of life work goals—Because these children in general have a large range of interests and are capable of succeeding in many areas, the problem of vocational choice is often a difficult one.

4. Variety of experiences—Mentally gifted children, like all children, however, may need different direction in achieving a balanced activity program. On one hand, exploitation of these children by the school must be avoided. On the other hand, care should be taken to insure broad experiences in many areas rather than specialization in just one of particularly strong interest.

5. Positive home and family relationships—The school can contribute greatly to the development of positive home and family relationships by working with parents of rapid learners to bring about cooperative action in the guidance of these children.

6. Effective citizenship—If the rapid learners are to make the contribution to society of which they are capable, training in citizenship must be planned carefully and executed in terms of the potentialities involved. While these children have much to contribute to the group situation, they need to develop the ability to get along with others if their contributions are to be effective. They must learn to understand themselves and their classmates.

In considering the needs of the rapid learner at the classroom level, a recent study suggests:

That students need to explore new avenues, to express themselves creatively, thus dealing with new concepts and

techniques beyond comprehension of many of their classmates.

Witty writes continually of the need to challenge the child's real ability, to enrich his reading, to satisfy, enrich and extend his real interest and to encourage creative expression.

It would appear that the needs of the rapid learner are different from the needs of other children largely in degree. In most situations he should be considered in terms of advanced maturity when thinking in terms of normal patterns of needs.

In our district, teachers working with rapid learners believe that enrichment means a different type of instruction than is basic in the regular classroom, and that items of enrichment to be studied must not only hold the interest of the age group, but their quality and depth of meaning should go beyond the demands of usual class work. In order that learning experiences might be richer than is customary the teachers planned opportunities for individual creative work and independent accomplishment.

During the past year, teachers working with cluster groups of rapid learners found various activities and procedures to be of value for rapid learners in the regular classroom.

1. *Reading of literature.* A program of self-selection of reading materials has proven to be successful in challenging rapid learners, if we place importance on remarks made by several sixth grade students who were "underachievers" when they were working in an ability-group situation exclusively.

"Reading is fun when you choose your own books."

"We can read as fast as we like and don't have to wait until someone finishes a page."

"We evaluate our own work more and see where we need to improve."

"Book reports are a lot more interesting when we think of many different ways to report."

"We can read books on things we are really interested in."

Self-selection means that the students have the opportunity to choose the material they read during the regular period of reading instruction. Books of many types, on many subjects and of varying degrees of difficulty are made available.

Teachers report that self-selection in reading is successful with rapid learners because the strong motivating force, interest, which is so often lost in a group-reading situation, is maintained when students are allowed to proceed at their own pace, with materials on their academic level.

Teachers report also that through the increased personal contacts with students each day, they are better able to provide for the optimum growth and development of each student by supplying him with a favorable social and intellectual environment that will stimulate his desire to think and produce creatively.

Rapid learners are usually adept at analyzing their own strengths and weaknesses and are particularly interested in records kept by the teacher and student

himself which include notes on problems met and progress made in skills and comprehension.

High standards are set by the rapid learners for their reports on audience day. Oral reports are timed and are checked for interest, accuracy and correct language usage.

2. *Reference work and study skills.* Teachers provide specific experiences in reference work and study skills because rapid learners require a knowledge of standard reference sources at an earlier than average age, and attain greater than average skill in using study helps. These experiences include efficient use of the desk and unabridged dictionary; the exploring of the possibilities of cross-references in using encyclopedias; special help in map and globe reading; introduction to the World Almanac; introduction to a thesaurus, particularly for students with a special interest or talent for creative writing; and special instruction in the use of such library helps as the Dewey Decimal System of Book Classification, and the Reader's Guide to Periodicals.

   One sixth grade group did some action research which entailed the reading of railway and flight time tables, checking magazines and other resources for points of interest in a city which a class member planned to visit.

   A group of rapid learners in a seventh grade classroom is writing to the contributors of articles in the World Book Encyclopedia to get more information on topics in the correspondent's and author's field of interest.

Teachers plan activities through which pupils gain a more thorough mastery of such study skills as: use of an index, reading of charts, tables and graphs. Standardized tests reveal that rapid learners as well as most students need additional help in this area. Rapid learners in three seventh grade classes and in one eighth grade class are keeping individual charts showing daily progress in comprehension and reading rates. Other groups are constructing charts and graphs which are used in making reports on material found in social studies units.

Teachers of rapid learners give guidance in the art of reading critically. The student is helped to detect the difference between a statement of fact as opposed to a statement of opinion; to judge which of two conflicting statements is more nearly accurate; to judge the authoritativeness of the material read; and to detect prejudice on the part of the author.

One group of rapid learners read news items covering the same story in several newspapers and were amazed to see the way in which the facts were distorted to fit the "policy" of the individual paper.

The same group examined the newspapers carefully to identify articles that were written for propaganda purposes alone. They agreed that if one is to read accurately in this scientific age, one must learn to read critically also.

3. *Language arts.* Activities are planned which enrich and extend the communication skills (oral, written, and listening). Repeated opportunities are given

for contributions to group discussions and the delivery of oral reports. Activities are introduced which aid the student in the ability to express himself clearly, freely, and with originality in written communication.

Teachers assist pupils to write good letters and interesting poetry by calling attention to correct form, style and special word study. Prefixes, suffixes, root words, antonyms, synonyms and the origin of words are studied.

One eighth grade group of rapid learners decided to write and illustrate a book of stories which could be used to entertain small children. This activity was carried out in a girls' homemaking class, and ultimately involved the whole class. Much research was done on style of writing, sentence structure and topics of interest to small children before the completion of the bound booklet.

A sixth grade group of rapid learners write and published a booklet, in mimeographed form, which contained the favorite original stories written by members of the class. a group of four class artists was chosen to illustrate the stories.

A print of "Blue Boy," by Gainsborough inspired a seventh grade girl to write a sketch about the author. She later made a time line illustrating the important dates in his life. Several other students in the same class chose a personality of particular interest to each, and employed the same technique.

4. *Social Science.* Local, national and world conditions are changing rapidly. With these changes come new

problems and new situations which make any set pattern of behavior worthless. Teachers of rapid learners encourage students to approach new situations with curiosity, to gather data, to experiment, to test hypotheses and to formulate opinions.

The concept of interdependence, which is the core of today's civilization, is well illustrated by the national and international groups of scientists working together in the International Geophysical Year. Our groups of rapid learners have been following the reports from the participating scientists in over fifty nations with intense interest. One eighth-grade boy said, "We are living right in the middle of the most important scientific undertaking in all history. It would have been impossible for one country alone to have done so well."

"That's right," replied his friend. "And when all the information is pooled and shared I bet we'll understand many things about the space above the earth and on the floor of the ocean that we didn't know before."

Teachers help rapid learners develop concepts and see relationships by introducing them to the cultural backgrounds that influenced Western culture and to the important movements in the history of democracy.

A seventh grade boy collected prints of Spanish explorers, read accounts of their exploits, mounted the prints and attached an abstract of the exploits to each print.

A boy in the same seventh grade class collected

Indian relics; mounted them for display; did a great deal of research through the reading of magazines and books; consulted resource persons who were familiar with Indian lore, and reported his findings in an oral report to the class.

A sixth grade class culminated a unit on Mexico with a fiesta to which visitors were invited. Authentic songs, dances, stories and food were presented. The teacher reported that many articles on Mexico had been read, audio-visual aids had been used, and much careful research had been done by the boys and girls while studying Mexico.

Clippings of world problems are posted on a bulletin board in an eighth grade classroom which contains a cluster group of rapid learners. An evaluation includes oral discussion and suggested solutions to the problems.

5. *Basic Natural and Physical Sciences.* The intense interest on the part of so many students in science this year can be partly attributed to the material published about the International Geophysical Year and partly to the enthusiasm and guidance of teachers who attended workshops in which they constructed science equipment for use in their classrooms. Some students made their own scientific equipment. Rapid learners were guided in developing a scientific attitude toward experimentation and reference reading, as were the other students.

One group of rapid learners located all the areas of activity in which the stations were located. Reports from the district library indicated that it was be-

sieged with requests for books and other materials on Alaska, the Antarctic, the Equatorial Pacific and the Atlantic Ocean. Many discussions were held on the cause of the auroras, the altitude of the isosphere, the top of the ionosphere, the chicken tracks on the floor of the ocean, the thickness of the ice in the antarctic region, and the possibility of determining the history of the weather at Byrd Station as far back as five hundred years.

Another group of rapid learners made a chart of all the words they would need to understand more clearly the terms used by IGY scientists in their reports in magazines and newspapers. Such words as Cosmic Rays, glaciology, gravity, meteorology, oceanography, seismology, solar activity, and rockets and satellites were written in a vocabularly notebook. A study trip to the Science Fair held at the Los Angeles County Museum in April, provided material for class discussions, charts, art work and plans for projects to be developed in the near future. Several students had entered projects in the fair. Others planned to enter projects next year.

One eighth grade class became interested in all aspects of the launching and flight of the satellites. A boys' committee recorded information, in the form of diagrams, of the American and Russian satellites, and diagrammed and reported orally the routes of both satellites. They also completed and hung a scale model. A girl's committee in the same class made sketches of the development of propulsion units and diagrams of the theory of flight.

Teachers encourage rapid learners in their search for more knowledge of astronomy by providing them with books and other materials. Some students are making scale drawings of relative distances of planets from the sun; others are making planet models; still others are making murals of the universe. An eighth grade committee is working arithmetic problems on distances relating to the solar system.

6. *Special interests.* Hobbies and collections of shells, rocks, and stamps, to mention a few, are recognized and encouraged by teachers. Many of the rapid learners in the cluster groups have several hobbies. The most popular are stamp collecting and rock collecting. One seventh grade boy has been collecting rocks and fossils for many years, and now has a valuable collection. He is writing a booklet describing his collection which he will present to the class.

Ample opportunities for creative expression are provided. Many rapid learners are creating art objects from clay, then having them fired in the school kiln. Others are making animals from papier mache, while still others are engaged in book binding. Two eighth grade boys are doing excellent work in copper etching and painting in oils. Many other media are being used successfully.

Enrichment activities in music are provided by vocal and instrumental music teachers in addition to those provided by classroom teachers. Many rapid learners are members of the orchestra, band, school glee clubs, and of smaller instrumental and vocal groups.

Rapid learners belong to various school clubs. One science club, to mention one among several, was organized to provide club members with activities that involved understandings in all fields of applied science as well as providing material that could be presented by club members to ergular classrooms.

The club divided itself into three groups, each concerned with a specific phase of I.G.Y.: Space, Oceanography and Glacial Research, Earth and Seismology. Because of the nature of the space study, a transportation committee was added to study jets, rockets, reactors, solar generators and other modern innovations.

Each group became informed on the over-all I.G.Y. program, then selected specific areas within their subject for research. For eample, the Space Committee studied the Vanguard project, Thor and Jupiter programs, guidance and orbit problems, present and future satellites and their use, information obtainable from satellites, and related problems of cosmic rays, absorption and reflection of heat and radiation particles, accurate mapping of earth's surface and other similar problems.

Each group presented its research to the club in the form of oral reports. The reports were followed by question and answer periods.

The majority of the teachers and the rapid learners in the fifteen cluster groups believe that this past year has been a particularly challenging one. The interest and enthusiasm shown by all members of classrooms containing cluster groups of rapid learners strengthen our belief that *all* boys

and girls benefit from an enriched program. We also believe that the reading needs in particular, of the rapid learners, have been more nearly met this year than in the past.

The writer hopes that we have helped our rapid learners to develop the ability to read behavior as well as to read what people have expressed in verbal terms—realizing that printed word reading alone cannot produce an educated person.

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